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Preventing Childhood Obesity: A Mixed Methods Study into the Perceptions of African Americans in a Rural Community

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PREVENTING CHILDHOOD OBESITY: A MIXED METHODS STUDY INTO THE PERCEPTIONS OF AFRICAN AMERICANS IN A RURAL COMMUNITY

by

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ABSTRACT

Preventing childhood obesity is a global priority due to adverse health risks and financial burdens. With childhood obesity rates stabilizing it is difficult to determine which factors alone (i.e., genetic, environmental, behavioral, or demographic) increase susceptibility to childhood obesity. Parents influence childhood obesity risk factors through their parenting styles and behaviors. Social behavioral theories and public health evidence demonstrate including parents in childhood obesity efforts could assist in reducing childhood obesity rates. The objective of this study was to assess perceptions of childhood obesity among African Americans with children enrolled in a rural elementary school in the Deep South. The concurrent mixed methods study utilized a fifty-nine item questionnaire and fourteen semi-structured interview guide to collect information on perceptions of risk factors, health complications, weight status of the child, the built environment, and prevention strategies. Using a convenience sample, participants ages 22-65, completed a paper-based survey (n=135) and participated in a face-to-face interview (n=12). Descriptive statistics were obtained from the surveys. A six-step process was used for qualitative analysis. Participants commonly cited behavioral risk factors as a contributing cause of childhood obesity; yet, they did not believe social aspects and appearance of the community were contributing factors. Also diabetes, hypertension, and stroke were health complications

reported by participants. Analysis of the surveys and interviews revealed that participants assessed their child's weight and height status by child's appearance or the child's recent doctor visit. In addition, few participants had a distorted view of their child's weight status. Barriers reported by participants included safety and insufficient physical activity venues and programs. Furthermore, participants believed parents played a vital role in the prevention of childhood obesity. Findings suggest that programs and interventions would be effective by focusing on parental concerns in rural communities. In addition, engaging parents in the design, implementation, and evaluation of these efforts would be beneficial. Obesity prevention efforts must address parent's individual choices, lifestyles, and the external environment of the rural community.

INDEX WORDS: Parents , rural health , African American, obesity, children, public health, perceptions, prevention, Social Ecological Model, Social Cognitive Theory, rural population

Preventing childhood obesity: A mixed methods study into the perceptions of African-Americans in a rural community

by

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DEDICATION

This study is dedicated to the children residing in communities similar to Clanton Park in Charlotte, North Carolina. Although you may encounter difficult circumstances as a child know that someone is encouraging you to release the shackles of oppression placed on you by society. They will categorize you but with faith, perseverance, and self-discipline you can defy every stigma. For you are an individual with a divine purpose. I believe in your dreams and talents. Do not become discouraged— you will go places you never imagined.

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Chapter 1

INTRODUCTION

Globally, the prevalence rates of childhood obesity have burgeoned into a pandemic among high, middle, and low income countries with an estimated 42 million children classified as obese or overweight (World Health Organization [WHO], 2012a). Overweight and obesity are related to more deaths globally than underweight (WHO, 2012a). In the United States, approximately 12.5 million children and adolescents ages 2-19 years are classified as obese (Ogden, Carroll, Kit & Flegal, 2012a). Since the 1960s, the National Health and Nutrition Examination Survey (NHANES) has collected and maintained data on overweight and obesity rates within the United States. This data revealed childhood obesity rates have triple over the past thirty years.

The prevalence of obesity among children ages 2-5 years has increased from 5.0% to 12.1% between 1976-1980 and 2009-2010, respectively (Fryar, Ogden, & Carroll, 2012). During that same time period, rates of obesity rose from 6.5% to 18.0% among children 6-11 years old. Adolescents 12 -19 years of age have seen rates increase from 5.0% to 18.4% (Fryar, Ogden, & Carroll, 2012). Current data confirm the prevalence of obesity among children is stabilizing, but not improving (Ogden, Carroll, Kit, & Flegal, 2012b). Throughout the years, public health professionals have examined childhood obesity disparities among racial/ethnic groups specifically African American girls and Mexican American boys (Ogden et al., 2012b; Taveras, Gillman, Kleinman, Rich-Edwards, & Rifas-Shiman, 2010).

The effects of obesity on a child are numerous, including physical and mental. For example, obese children are likely to be obese in adulthood and are more susceptible to chronic

diseases including diabetes, cardiovascular disease, cancer and hyperlipidemia (Biro & Wien, 2010; Centers for Disease and Control [CDC], 2012a; Dietz, 1998; Whitaker, Wright, Pepe, Seidel, & Dietz, 1997). Socially, children who are obese tend to be bullied by their peers and are subject to negative stereotypes such as being considered lazy leading to lower self-esteem (Dietz, 1998).

In addition direct medical, productivity, transportation, and human capital costs are interrelated to the obesity problem (Hammond & Levine, 2010). The total cost related to the current prevalence of obesity and overweight is estimated to be $254 billion dollars (Go, Mozaffarian, Roger, Benjamin, Berry, Borden, Bravata, Dai, Ford, Fox, Franco, Fullerton, Gillespie, Hailpern, Heit, Howard, Huffman, Kissela, Kittner, Lackland, Lichtman, Lisabeth, Magid, Marcus, Marelli, Matchar, McGuire, Mohler, Moy, Mussolino, Nichol, Paynter, Schreiner, Sorlie, Stein, Turan, Virani, Wong, Woo, & Turner, 2013). If obesity rates continue to escalate, the United States will spend $66 billion dollars per year for treatment of obesity-associated diseases (Wang, McPherson, Marsh, Gortmaker, & Brown, 2011). By 2030, the total healthcare costs attributable to obesity would be approximately $957 billion dollars accounting for 16% to 18% of the United States health expenditures (Go et al., 2013).

Statement of the Problem

Childhood obesity is a public health concern resulting in unhealthy behaviors, which reinforce negative lifestyles and adverse outcomes in adulthood. Research reveals there are countless predictors of childhood obesity. Factors that increase susceptibility of childhood obesity include: genetics, environment, demographics, and behaviors (CDC, 2012b; Larson, Story, & Nelson, 2009; Neel, 1962; Reedy & Krebs-Smith, 2010; Singh, Siahpush, & Kogan,

2010a; Zhao & Grant, 2011; Zimmerman & Bell, 2010). The interactions of these factors results in childhood obesity (CDC, 2012b) making childhood obesity a multi-dimensional issue.

To view this problem holistically research should be conducted on parents' perceptions of childhood obesity. Parents should be considered a common underlying contributor to childhood obesity because they play an intricate role in these aforementioned factors through their parenting styles, behaviors, and attitudes resulting in the development and socialization of their children (Lindsay, Sussner, Kim, & Gortmaker, 2006; Rhee, 2008). Parents have an overarching influence on childhood obesity risk factors, but are usually underemphasized in childhood obesity intervention/education efforts rather school and community-based programs are dramatically emphasized (Franzini, Elliott, Cuccaro, Schuster, Gilliland, Grunbaum, Franklin, & Tortolero, 2009; Rahman, Cushing, & Jackson, 2011; Slusser, Prelip, Kinsler, Erausquin, Thai, & Neumann, 2011).

Childhood obesity rates in rural settings are higher than state and national averages and urban settings (Conway, Haller, & Lutfiyya, 2012; Davis, James, Curtis, Felts, & Daley, 2008; Joens-Matre, Welk, Calabro, Russel, Nicklay, & Hensley, 2008; Montgomery-Reagan, Bianco, Rettos, & Huston, 2009; Reed, Patterson, & Wasserman, 2011). The obesity rate in rural settings is 16.7% compared to 14.3% in urban settings (Liu, Bennett, Harun, Zheng, Probst, & Pate, 2007). Prior studies including families residing in rural areas are limited in scope because they do not account for rural challenges (Davis et al., 2008; Tai-Seale & Chandler, 2003; Tovar, Chui, Hyatt, Kruder, Kraak, Choumenkovitch, Hastings, Bloom, & Economos, 2012). Rural parents encounter multiple challenges when attempting to promote and maintain a healthy lifestyle for their children. For example access to recreational parks and facilities, grocery stores with fresh produce, and health care resources are unavailable or inaccessible to rural communities (Davis et

al., 2008; Tai-Seale & Chandler, 2003; Tovar et al., 2012; Yousefian, Ziller, Swartz, & Hartley, 2009). Given the multi-dimensional problem of childhood obesity and the vulnerability of a rural setting, it is imperative that research is conducted on parental perceptions of childhood obesity and their prevention strategies.

After reviewing the literature, prior studies have not assessed the perceptions of preventing childhood obesity among African American parents in rural communities. By employing the Social Ecological Model (McLeroy, Bibeau, Steckler, & Glanz, 1988) and Social Cognitive Theory (Bandura, 1977), professionals in the public health field and other disciplines can increase understanding of this multi-dimensional public health issue. For example, interventions ranging from physical activity habits to dietary change have utilized the Social Ecological Model and Social Cognitive Theory (Glanz, Rimer, & Viswanath, 2008). This may aid in designing and implementing clinical and public health interventions and policies; thereby, promoting social justice and reducing health disparities and inequities in childhood obesity.

Interventions and programs are needed for vulnerable populations specifically individuals of low socioeconomic status (Alexander, Huber, Piper, & Tanner, 2013; Fleischhacker, Evenson, Rodriguez, & Ammerman 2011; Singh, Siahpush, Kogan, 2010b). These individuals might benefit from culturally tailored programs and interventions because they encounter more risk factors (e.g., limited access to health care resources, lack of access to healthy foods and physical activity infrastructure , and greater exposure to advertisements of obesity products); thereby, increasing the prevalence of childhood obesity. Although examining perceptions cannot solve the multi-dimensional problem of childhood obesity it can help parents become aware of their child's healthy and unhealthy habits. Furthermore, it is essential for researchers and practitioners to obtain a thorough understanding of the perceptions of preventing obesity among African

American parents in rural communities because it will assist professionals in gaining insight on the knowledge, attitudes, and skills of this population as well as how decision-making is influenced.

It is imperative that public health professionals are cognizant of the pivotal role parents have in preventing and reducing childhood obesity by learning the perceptions people of all backgrounds and geography have of childhood obesity and prevention tactics. Studies of parents and childhood obesity have concluded that disparities and inequities exists among African Americans such as access to supermarkets and recreational facilities, socioeconomic status, and health outcomes (Goodell, Pierce, Bravo, & Ferris, 2008; Sealy, 2010; Sealy & Farmer, 2011; Singh, Siahpush, & Kogan, 2010b). However, many past studies were subjected to small sample sizes and conducted only in urban settings. Thus, results are neither generalizable nor transferable to African Americans in rural locations. In this study, parental perceptions will be operationalized as comprising three components: parent's awareness of risk factors and health complications, parental perceptions of their child's weight status, and barriers and facilitators of their child's built environment (e.g., access to recreational parks and facilities, sidewalks, healthy foods, and schools). For this current study, studies and interventions were found and examined on the aforementioned components of parental perceptions.

Purpose of the Study

The purpose of this concurrent mixed methods study employing the Social Ecological Model (McLeroy et al., 1988) and Social Cognitive Theory (Bandura, 1977) was to conduct formative research on parents' perceptions of childhood obesity for future studies. The quantitative survey explored African American parents' perceptions of childhood obesity. Furthermore, the survey provided insight for future programs and interventions for this target

population. The qualitative interviews explored parental perceptions of childhood obesity risk factors and associated health issues, perceptions of weight status, and elements of the built environment extensively among African American parents in a rural community. Findings from both methods were combined to provide a holistic view of the research questions being examined (Creswell, 2009). By employing quantitative and qualitative methods simultaneously, the researcher measured and collected rich information on the three aspects of parental perceptions and prevention strategies addressing the multi-dimensional nature of the problem.

Research Design

The proposed study utilized a concurrent mixed-method design. Quantitative and qualitative data were collected simultaneously to strengthen the validity and credibility of the study and provided an expanded understanding of the research problem (Creswell, 2009). In this study, the survey and interview data were combined and triangulated (Creswell, 2009).

Research Questions

The following research questions were generated based on the literature review:

Main Question:

1. What are African American parental perceptions of childhood obesity in a rural community?

Sub Questions:

1. What are parent's awareness of childhood obesity risk factors and health concerns of obesity?
2. What are parent's perceptions of their child's weight status?
3. What are parent's perceptions of barriers and facilitators in their child's built environment associated with childhood obesity?

Main Question:

2. What are African American parent's perceptions and prioritization of childhood obesity prevention strategies in a rural community?

Significance of the Study

The study of parental perceptions of childhood obesity among African Americans in rural areas is vital for multiple reasons. First, an understanding of the problem revealed that participants were aware of all risk factors that contributed to childhood obesity. Second, this study provided valuable insight and enhanced the mixed methods literature by utilizing the concurrent design. The integration of both types of data provided an in-depth insight into the problem of the increasing rates of childhood obesity by exploring the perceptions of African American parents in a rural community and providing an exhaustive view of the target population's context. Third, the lessons learned while conducting this study provided insight into designing and implementing culturally appropriate micro-and macro-level interventions.

Delimitations

The study occurred during June - November 2013. The location of the study was in a rural county in Georgia. The study sample included African American participants, 18 years or older with children who attended the targeted elementary school. Parents were defined as the individual who had legal guardianship of the child. Only one parent and child participated in the study. The researcher interviewed the parent who knew the most about the child's lifestyle habits, attended majority of the child's doctor appointments, and who voluntarily agreed to participate in the interview.

Assumptions

The assumptions of the study were as follows:

1) All participants completing the interviews and surveys answered honestly reflecting their own opinions; and
2) The survey and interview guide satisfactorily assessed parent's perceptions of childhood obesity and prevention strategies to reduce childhood obesity on multiple levels.

Organization of the Remaining Chapters

In chapter one the introduction, problem statement, purpose of the study, research design and questions, significance of the study, delimitations, and assumptions are presented. Chapter two is provides a comprehensive review of related literature to the association of parent perceptions and childhood obesity. Chapter three details the methodology of the quantitative and qualitative process of the study. Chapter four presents the results of the study, and chapter five discusses the conclusion of the research.

Chapter 2

LITERATURE REVIEW

In this literature review, parent's perceptions is defined as awareness of contributing factors and health complications, perceptions of their child's weight status, and perceptions of barriers and facilitators of their child's built environment. This chapter is separated into five sections describing the review of literature and public health theories employed in this study. The first section provides information on childhood obesity. The second section presents evidence of childhood obesity statistics and current policies in Georgia. The third section explores parental perceptions of childhood obesity. The fourth section details interventions that have been conducted on childhood obesity. Lastly, the fifth section provides an overview of the Social Ecological Model and Social Cognitive Theory.

Defining Childhood Obesity

Obesity is defined as excessive fat accumulation that presents health risks (WHO, 2012b). Multiple measures such as BMI, waist circumference, waist-to-hip ratio (WHR), skinfold thickness, bioelectric impedance analysis (BIA), underwater weighing (densitometry), air-displacement plethysmography (ADP), dilution method (hydrometry), dual energy x-ray absorptiometry (DXA), and computerized tomography (CT) and magnetic resonance imaging (MRI) are employed to assess obesity (Hu, 2008). The most basic and common method is BMI. It is convenient for medical professionals in community settings (e.g., clinics, health departments, and hospitals) to calculate BMI during a doctor's appointment (Hu, 2008). In addition, multiple entities such as the National Institute of Health (NIH) and Centers for Disease Control and Prevention (CDC) provide access to tables and online calculators for individuals to

assess BMI. Some of the aforementioned methods to measure obesity cannot be employed among children due to safety concerns.

To assess obesity in children, BMI, calculated from a child's weight and height is measured. Body fat is not directly assessed by BMI; however, BMI does correlate to direct measures of body fat to screen for weight problems (CDC, 2012a; Han, Lawlor, & Kimm, 2010; Fryar, Ogden, & Carroll, 2012; Hu, 2008). Children do not have internationally agreed thresholds of BMI for defining weight status because physiological changes are difficult to classify (Flegal & Ogden, 2011; Han, Lawlor, & Kimm, 2010; WHO, 2012b). Therefore, childhood obesity is defined as BMI at the 85th, 90th, 95th, and 97th percentile in different countries (Han et al., 2010). The inconsistent measurement of childhood obesity among countries results in multiple interpretations. In the United States, the assessment of childhood obesity is classified into four groups: underweight (less than the 5th percentile), healthy weight (5th percentile to less than the 85th percentile), overweight (85th to less than the 95th percentile), and obese (equal to or greater than the 95th percentile) based on same age and sex children (CDC, 2012a; CDC, 2012b).

Epidemiology

Globally, the obesity prevalence is monitored by the WHO database (Nguyen & El-Serag, 2010). The WHO database reveals that approximately 700 million individuals will be obese by 2015 (Nguyen & El-Serag, 2010). In 2010, it was estimated that 46 million children were overweight or obese whereas 92 million children were at risk of becoming overweight (De Onis, Blossner, & Borghi, 2010). Worldwide rates of childhood obesity have increased over the last three decades predominantly in low income and industrialized countries (Han et al., 2010). The Pacific Islands have the highest rates of obesity, whereas Asia has the lowest rates (Nguyen

& El-Serag, 2010). Since the 1970s, in Australia, Brazil, Canada, Chile, Finland, France, Germany, Greece, Japan, the United Kingdom, and the United States have seen an increase in the prevalence rates of obesity (Han et al., 2010). However, current data confirms the prevalence rates of obesity among children is stabilizing and not improving (Ogden, Carroll, Kit, & Flegal, 2012b).

In the United States, obesity has increased among rural communities, minorities, and lower social strata groups (Tovar et al., 2012). A Healthy People 2020 goal is to reduce the number of children and adolescents who are considered obese by screening for obesity and designing and promoting community interventions (Healthy People, 2012). Approximately 17% of children in the United States were obese between 2009-2010 (Fryar, Ogden, & Carroll, 2012; Powell, Han, & Chaloupka, 2010). African American, Mexican American, American Indian, and Alaska Native children have higher rates of obesity than other ethnic groups (Fryar, Ogden, & Carroll, 2012). Furthermore, African American adolescents are more susceptible to obesity compared to their Anglo- American counterparts because they encounter more risk factors such as lack of access to quality grocery stores and recreational facilities in their communities and frequent exposure to food advertisements (Alexander et al., 2013; Bibeau, Saksvig, Gittelsohn, Williams, Jones, & Young, 2012; Powell, Szczypka, & Chaloupka, 2010).

Obesity among African Americans

African Americans are disproportionately affected by obesity in rural areas (Elizondo & Morgan, 2012; Fryar, Ogden, & Carroll, 2012) making them more susceptible to chronic illnesses including diabetes, hypertension, and cancer (CDC, 2011; Elizondo & Morgan, 2012). Currently, 35.9% of African American children between the ages of 2-19 are obese (Ogden, Carroll, Curtin, Lamb, & Flegal, 2010). Being obese as a child is a precursor for being an obese

adult with poor health outcomes. Minorities who reside in rural areas are more likely to be uninsured, unemployed, and poor; thereby, perpetuating health disparities (Elizondo & Morgan, 2012). Furthermore, African American communities experience many barriers in their environment resulting in higher obesity rates (Alexander et al., 2013).

Economic Consequences

Obese children encounter intrapersonal, interpersonal, and community factors; however, their families and the country suffer from the economic consequences. In 2012, the United States spent $190 billion dollars on obesity (Cawley & Meyerhoefer, 2012). The medical expenses for an obese child are three times higher than a healthy weight child because they require more medications, emergency room treatment, and outpatient services (Children's Defense Fund, 2012; Trasande & Chatterjee, 2009). In addition, obese children are likely to be hospitalized for pneumonia, appendicitis, asthma, and skin infections (Children's Defense Fund, 2012).

Rural Areas

The role of childhood obesity in rural areas is not highly recognized among the general public (Davis, et al., 2008). There are insufficient studies assessing childhood obesity rates among rural children specifically African American children (Davis et al., 2008). Rural children are 20-25% more likely to be obese than their urban counterparts (Conway, Haller, & Lutfiyya, 2012; Davis et al., 2008; Lutfiyya, Lipsky, Wisdom-Behounek, & Ipanbutr-Martinkus, 2007; Reed, Patterson, & Wasserman, 2011). Access to healthcare, parks and recreational facilities, and nutritious foods are three possible reasons why the prevalence rate of obesity is higher among rural children (Davis et al., 2008; Tai-Seale & Chandler, 2003; Tovar et al., 2012; Yousefian et al., 2009).

The Rural Healthy People 2010 suggests cultural and structural barriers in rural regions may contribute to obesity (Davis et al., 2008; Tai & Chandler, 2003). In addition Davis, Bennett, Befort, and Nolan (2011) suggest race is a significant factor that contributes to obesity in rural areas specifically African Americans. Individuals who reside in rural areas are more likely to experience poverty (Scott & Wilson, 2011), have a chronic disease, eat unhealthy, and have less education than their urban counterparts resulting in higher obesity rates (Davis et al., 2008; Davis et al., 2011; Elizondo & Morgan, 2012; Smith & Morton, 2009; Williamson, Champagne, Han, Harsha, Martin, Newton, Ryan, Sothern, Stewart, & Webber, 2009). Yet rural communities have a higher degree of social capital compared to urban communities (Crosby, Wendel, Vanderpool, Casey, & Mills, 2012). Consequently, individuals who reside in rural areas have multiple dimensions of social capital that can be employed to improve health outcomes (Folland, 2007; Hofferth & Iceland, 1998).

Georgia

Since 2003, the prevalence of obesity among children has increased in Georgia creating a public health priority (Data Resource Center for Child & Adolescent Health [DRC], 2012). In the United States, Georgia ranks as the seventeenth obese state in the nation for childhood obesity (Robert Wood Johnson Foundation [RWJF], 2013). Georgia is far from accomplishing their long-term goal of decreasing the prevalence of obesity by 2015, but has made significant strides (Georgia Department of Human Resources, n.d.). In Georgia, hospitalizations related to childhood obesity totaled $2.1 million dollars annually and continue to increase (Obesity in Children & Youth, 2010). According to the 2011 Behavioral Risk Factor Surveillance System (BRFSS), African Americans who reside in Georgia have an obesity rate of 36.8%, which is higher than other race/ethnicity groups. In addition, families who have public health insurance

and are of low socioeconomic status in Georgia are more obese than families who have private health insurance and a high socioeconomic status (DRC, 2007).

Unhealthy eating and physical inactivity are two possible reasons why Georgia has a high prevalence rate of childhood obesity. Current obesity regulations in Georgia include: 1) students have some physical education requirements at schools; 2) schools are required to share their facilities with communities through shared use agreements; 3) Safe Routes to Schools (SRTS) programs have been implemented to improve sidewalks and bike paths; and 4) schools are require to provide health education (RWJF, 2013). However, BMI and weight-related assessments are not required by law in Georgia (RWJF, 2013). In addition, Georgia does not have a nutritional standard policy for competitive foods within the school setting. Furthermore, only two states in the country not including Georgia enacted a regulation for water availability in schools (RWJF, 2013).

In this study, the targeted county ranks 144 out of 159 Georgia counties for health outcomes (County Health Rankings, 2013). According to the CDC (2009), this county has an obesity level of 37.4%, which is higher than the state of Georgia. Thirty-five percent of children residing in this county live in poverty, and 15.6% of children live in single-parent households (National Initiative for Children's Healthcare Quality, n.d.). The elementary school is comprised of grades 3-5 with a total of 863 students (Males: 438 and Females: 425). There are five-hundred and ninety-five African American students who attend this school.

Parental Perceptions

Multiple studies have investigated healthy eating habits and sedentary behaviors (Goldberg & Gunasti, 2007; Stroup, Johnson, Proctor, Hahn, 2009) few studies have assessed parental perceptions as a predictor of childhood obesity (Gruber & Haldeman, 2009; Rhee, 2008;

Sealy, 2010; Sealy & Farmer, 2011). Research reveals that many parents do not recognize their child is susceptible to obesity; however, parents who have more education are likely to acknowledge their child is obese (Doolen, Alpert, Miller, 2009; Gruber & Haldeman, 2009). Parents should strive to prevent childhood obesity by obtaining accurate perceptions regarding this public health issue.

Parents: The Agent of Change

Parents play a factor in the growth and socialization of their children through their parenting styles, practices, behaviors and attitudes (Lindsay et al., 2006; Omar, Coleman, & Hoerr, 2001; Rhee, 2008). Parents create a home environment where behaviors can be encouraged or discouraged. Furthermore, parents are underemphasized in childhood obesity prevention and treatment efforts while evidence continues to reveal that parents play a substantial role in reducing and preventing childhood obesity (Adkins, Sherwood, Story, & Davis, 2004; Andrews, Silk, & Eneli, 2010; Bryant, Stevens, Wang, Tabak, Borja, & Bentley, 2011; Rhee, 2008).

Awareness of Risk Factors (Intrapersonal)

Multiple risk factors of childhood obesity have been identified worldwide including genetics, behavioral, environmental, and demographic factors (Han, Lawlor, & Kimm, 2010; Singh, Siahpush, Kogan, 2010; Zhao & Grant, 2011). Genetics may increase a child's susceptibility to obesity; therefore, if a child's parent is obese it is likely that the child will be obese (Dietz, 1998). Additionally, race/ethnicity and socioeconomic status are demographic factors that potentially result in childhood obesity (Freedman, Khan, Serdula, Ogden, & Dietz, 2006; Ogden et al., 2012b; Singh, Siahpush, & Kogan, 2010b). Sedentary behaviors and excessive food intake are the two main behavioral factors for obesity that have been examined by

researchers (Han, Lawlor, & Kimm, 2010; Lioret, Volatier, Lafay, Tourvier, & Marie, 2009; Powell, Han, & Chaloupka, 2010). Furthermore the child's home, school, and community environment may influence the adoption of healthy and unhealthy behaviors (Alexander et al., 2013; Rahman, Cushing, & Jackson, 2011; Sealy, 2010).

Research shows that it is not one factor, but an interaction among these factors that increases the susceptibility of childhood obesity (Han, Lawlor, & Kimm, 2010). Once the child is obese the susceptibility for adverse health effects are amplified. African American children who reside in rural communities encounter more of these risk factors than their counterparts. Parent's awareness of the four major risk factors that increase a child's chance of being obese should be considered an important component when preventing and reducing childhood obesity.

Genetics

Minimum research has been conducted on the role of genetics in childhood obesity. Hypotheses have been developed to explain the association between genetics and obesity including: the thrifty gene hypothesis (Neel, 1962), the fetal programming hypothesis (Breier, Vickers, Ikenasio, Chan, & Wong, 2001), the predation release hypothesis (Speakman, 2007), and the complex hypothesis (Walley, Asher, & Froguel, 2009). However, public health literature was not found deeming these hypotheses as credible evidence.

Some genetic disorders such as Prader-Willi and Bardet-Biedl syndrome can cause obesity (CDC, 2011; Holcomb, Pufpaff, & McIntosh, 2009; Yaqubi, 2011). In addition, children with special needs have higher obesity rates than children without special needs because they encounter challenges such as poor motor skills, fewer opportunities to exercise, and compulsive behaviors (CDC, 2010; Chen, Kim, Houtrow, Newacheck, & 2010; Holcomb, Pufpaff, & McIntosh, 2009). The genetic influence of obesity can begin as early as a child's development

(Doolen, Alpert, Miller, 2009; Reed, Patterson, & Wasserman, 2011). However, only 5-25% of people who are obese are obese due to genetics (Bouchard, Despres, & Tremblay, 1991; Ravussin & Swinburn, 1992; Yaqubi, 2011).

Demographics

Race/Ethnicity

Research confirms that race/ethnicity is a contributing factor of obesity (CDC, 2011; Davis et al., 2011; Ogden et al., 2012; Scott & Wilson, 2011). Traditionally race has been defined as a biological characteristic, but has evolved to a social construct (Long et al., 2012; McKenzie, Neiger, & Thackeray, 2008). Ethnicity is defined as common cultural characteristics that are shared by a specific population such as history, religion, and language (Caprio et al., 2008; Long, Mareno, Shabo, & Wilson, 2012). The prevalence of obesity is higher in minority children living in low socioeconomic status households (CDC, 2011; Ogden et al., 2012). African American girls and Mexican American boys are usually more obese than their Anglo American counterparts (Fryar, Ogden, & Carroll, 2012). This could be due to the strong influence their ethnicity plays in the foods their parents purchase and consume (Sealy, 2010).

Socioeconomic Status

Residential segregation plays a role in sustaining differences in socioeconomic status by race (Lovasi, Hutson, Guerra, & Neckerman, 2009). In low socioeconomic status minority communities, characteristics of the built environment affect children's physical activity and eating habits; thereby, contributing to childhood obesity (Lovasi et al., 2009; Rahman, Cushing, & Jackson, 2011). It is a barrier for low income families to have fresh produce in their communities and access to recreational parks and facilities. Sealy (2010) reported that low income families need culturally supportive elements in their environment for children to achieve

a healthy weight status and lifestyle. In addition, children who have educated parents are less likely to be obese (Eckstein, Mikhail, Ariza, Thomson, Millard, & Binns, 2006).

Behavioral

Sedentary behaviors and excessive energy intake are the two essential behavioral factors that contribute to childhood obesity (Yaqubi, 2011). At present, public health professionals have noticed a decrease in children participating in physical activity because of technology (Moore, Jilcott, Shores, Evenson, Brownson, & Novick, 2010; Powell, Szczypka, & Chaloupka, 2010). Watching a large amount of television can lead to children spending less time participating in physical activity (Rahman, Cushing, & Jackson, 2011) and an increase in the consumption of foods with high sugar and sodium (Harris, Bargh, & Brownell, 2009). The media frequently advertises foods that are high in fat, sugar, and sodium. African Americans watch more hours of television than their Hispanic or Anglo American counterparts (Powell, Szcypka, & Chaloupka, 2007; Rideout, Foehr, & Roberts, 2010); thus, being exposed to more food advertisements (Outley & Taddese, 2006; Powell, Szczypka, & Chaloupka, 2010).

Physical Activity

According to the CDC (2013), children should be active for sixty minutes a day. Approximately, 34% of children participate in the recommended levels of physical activity (CDC, 2009). Physical inactivity contributes to an imbalance of calories expenditures leading to obesity and chronic diseases. Many barriers prevent children from participating in physical activity: lack of role models, poor access to transportation, lack of access to recreational parks and facilities, and neighborhood safety (Adkins, Sherwood, Story, & Davis, 2004; Alexander et al., 2013; Spurrier, Magarey, Golley, Curnow, & Sawyer, 2008). Adedze and colleagues (2011)

found African American parents report their children spend more time engaged in sedentary behaviors than physical activity.

Excessive Food Intake

Consumption of fast foods, upgrading value meals, snacking on foods high in fats and sugars, and drinking sugar- sweetened beverages contributes to childhood obesity (Birch & Ventura, 2009; Warren, Wicks, Wicks, Fosu, Chung, 2007). The main factor for children's food choices is convenience for parents (DHHS, n.d.; Omar, Coleman, & Hoerr, 2001); therefore, most children consume their meals outside of their homes (Popkin, Duffey, Gordon-Larsen, 2005). Children begin to develop food preferences through exposure and repeated experiences by their parents (Birch, 1980). Therefore, parents have an influence on controlling a child's sedentary behaviors and excessive food consumption (Andrews et al., 2010).

Environment

The environmental factors such as the home, school, and community environment can contribute to childhood obesity. In the home the parents experience barriers in providing nutritious meals, examining mealtime behavior of the family, and lack of nutritional knowledge (Omar, Coleman, & Hoerr, 2001). Parents should strive to be a positive role model and provider to their children in the home environment. Additionally, schools should attempt to teach healthy behaviors and lifestyles to children by incorporating obesity education in the school curriculum (DHHS, 2010). Furthermore, the community environment influences access to physical activity sites and healthy foods among children (CDC, 2011). Children who live in low income neighborhoods have less access to recreational parks and facilities and experience higher crime rates leading to obesity (Yaqubi, 2011).

Home Environment

In the home setting, parents can influence their child's habits through modeling, feeding practices, providing physical activity equipment, monitoring screen time, and examining their own lifestyle habits (Hendrie, Coveney, & Cox, 2011; Hennessy, Hughes, Goldberg, Hyatt, & Economos, 2012; Sealy, 2010). Studies indicate that exposure to healthy and unhealthy foods may establish a hierarchy of food preferences and purchase requests among children (Birch, 1980; Powell, Szczypka, & Chaloupka, 2010). To decrease consumption of fats and sugars, fruits and vegetables should be available in the child's home environment since exposure is a key determinant to consumption (Bryant et al., 2011; Cerin, Barnett, & Baranowski, 2009; Krolner, Rasmussen, Brug, Klepp, Wind, & Due, 2011). By controlling their child's quantity or quality of food intake, parents can be a factor in food and taste preference (Fisher & Birch, 1995). In addition, Sealy (2010) asserted that children eating habits were associated with their ethnic and cultural identity.

Access to Healthy Foods

African Americans reside in neighborhoods that have an inadequate supply of local supermarkets with fresh produce (Morland & Filomena, 2007; Small & McDermott, 2006) and more fast food restaurants and convenience stores (Kwate, Yau, Loh, & Williams, 2009; Powell, Sczcypka, & Chaloupka, 2007). Costly prices of healthy foods are considered another reason why children in low income communities are not eating healthy (Powell, Auld, Chaloupka, O'Malley, & Johnston, 2007; Yousefian, Leighton, Fox, & Hartley, 2011). Children who reside in areas where fruits and vegetables are costly are more likely to become obese than children who reside in areas where fruits and vegetables are less costly (Hiller, 2008). Studies have shown that food prices, quality, variety, and accessibility vary significantly by neighborhood (Corral,

Landrine, Hao, Zhao, Mellerson, & Cooper, 2011; Powell, Auld, Chaloupka, O'Malley, & Johnston, 2007; Rahman, Cushing, & Jackson, 2011; Yousefian et al., 2011). Large grocery stores provide more economical prices than smaller stores, but usually are not located in low income neighborhoods (Morland, Wing, & Diez Roux, 2002). Also, rural low income areas have fewer grocery stores and farther distances to travel creating an environment where residents rely on convenience stores (Smith & Morton, 2009; Yousefian, Leighton, Fox, & Hartley, 2011). Although it has been found that community gardens can encourage healthy eating (Glanz & Yaroch, 2004) these are less likely to be found in low income neighborhoods.

Parents in the Workforce

Increased employment hours among parents are associated with increases in childhood obesity (Powell et al., 2007). Currently, women assumed more jobs in the workforce and serve as sole providers in some households. Parents who are working may not have time to prepare or shop for a healthy meal for their children during the week (Omar, Coleman, & Hoerr, 2001; Sealy, 2010); resulting in meals at fast food restaurants. Research reports children who reside in one-parent households are more likely to have a higher prevalence of obesity than children who live in two-parent households (Huffman, Kanikireddy, & Patel, 2010).

School Environment

Children spend the majority of their day within a school setting. Schools can provide different opportunities for adopting a healthy lifestyle which includes eating healthy and positive attitudes about physical activity (Haerens, Deforche, Maes, Stevens, Cardon, & De Bourdeaudhuij, 2006; Leviton, 2008; Story, Nanney, & Schwartz, 2009; Wechsler, Devereaux, Davis, & Collins, 2000). The United States Department of Health and Human Services recommends children between the ages of 6-17 participate in 60 minutes or more of physical

activity daily (n.d.). Schools vary in the amount of physical education time offered to children and adolescents (United States Government Accountability Office [GAO], 2012). This may be a result of the emphasis parents and teachers place on standardized tests. At times, subjects in schools that are not tested have a lower priority and are removed from the school's curriculum (Leviton, 2008; Pederson, 2007).

School Cafeteria

The school cafeteria may impact the child's weight status. When children are in school, they have access to unhealthy foods in the vending machines and school stores. Although parents aid in the child's food preference and selection, the school cafeteria does as well (Rahman, Cushing, & Jackson, 2011) because of the preparation and presentation of the food. Food distributors target children through clever advertisements. If schools were to apply the same tactics, children might eat healthier. African American middle school students have less access to healthy food at school than their Anglo-American counterparts (Delva, O'Malley, & Johnston, 2007).

School Classroom

In Georgia, children usually receive 4-6 hours of instructional learning at school (Education Commission of the States, 2011). The classroom can promote healthy eating and physical activity by teachers and nutritionists designing a curriculum instructing children on healthy lifestyles. During classroom time teachers could incorporate physical activity that would help children exert more energy. Some school-based interventions that included a dietary and physical component were effective in changing food and physical activity behavior among students (Bautista-Castano, Doreste, Serra-Majm, 2004; Fulton, McGuire, Caspersen, & Dietz, 2001; Kahn, Ramsey, Brownson, Heath, Howze, Powell, Stone, Rajab, Corso, 2002). Also,

interventions that promoted healthy lifestyles using classroom curriculum has been effective in reducing BMI among boys and girls (Gortmaker, Peterson, Wiecha, 1999; Sallis, McKenzie, Conway, Elder, Prochaska, Brown, Zive, Marshall, & Alcaraz, 2003). In addition, school nurses can conduct physicals and monitor the child's weight status. School officials have reported budget cuts for physical education by not allowing the schools to hire physical education teachers, maintain an appropriate class size, and purchase equipment (GAO, 2012). Furthermore, the No Child Left Behind Act of 2001 has placed more emphasis on standardized testing and less on physical education (United States Department of Education, 2010); thereby, increasing obesity rates in the United States.

Community Environment

Disadvantages of segregated neighborhoods in which most African Americans reside may contribute to health disparities (Landrine & Corral, 2009; Morland and Filomena, 2007) leading to an increase in childhood obesity rates. Children of lower socioeconomic status families have a higher susceptibility of being obese because the lack of safety prevents them from participating in physical activity (DeMattia & Denny, 2008). Therefore, these children may not walk or ride bicycles to school or play outside as often because of safety risks or lack of access to recreational parks and facilities (Alexander et al., 2013).

Social Environment of the Community

The lack of social cohesion and social capital in neighborhoods can prohibit children from playing and interacting with other children resulting in sedentary behaviors (Franzini, Elliot, Cuccaro, Schuster, Gilliland, Grunbaum, Franklin, & Tortolero, 2009). Social contact and exchange among community members can lead to a healthy lifestyle (Duke, Borowsky, & Pettingell, 2012; Franzini et al., 2009). The social network and support of neighbors who watch

each other's children can potentially promote healthy norms in the community (Franzini et al., 2009). In addition, collective efficacy in neighborhoods can result in availability and access to recreational resources for children (Burdette, Wadden, & Whitaker, 2006; Franzini et al., 2009). Therefore, policies and interventions to reduce childhood obesity must take social factors into consideration (Franzini et al., 2009).

Health Complications

As a result of obesity children encounter multiple adverse health outcomes. Obesity within preschool years likely leads to obesity in adolescence and adulthood (Taveras, Gillman, Kleinman, Rich-Edwards, Rifas-Shiman, 2010). In addition, obesity results in children acquiring cardiovascular disease, diabetes, sleep apnea, cancer, pulmonary complications, and musculoskeletal disorders (Dietz, 1998; Sutherland, 2008; Taylor, Theim, Mirch, Ghorhani, Tanofsky-Kraff, Alder-Wailes, Brady, Reynolds, Calis, & Yanovski, 2006; WHO, 2012c). Obese children are more likely to experience these adverse health outcomes compared to healthy weight children (Dietz, 1998). Additionally, children who are obese are more likely to experience psychosocial stress due to the social discrimination of their peers (Dietz, 1998; Walker & Hill, 2009), and be subjected to negative stereotypes such as being academically unsuccessful resulting in a sense of inferiority (Dietz, 1998). Childhood obesity is associated with a higher chance of premature death, depression, and anxiety disorders (Dietz, 1998; Walker & Hill, 2009; WHO, 2012c). These outcomes can limit physical activity among obese children; thereby, resulting in more weight gain.

Perceptions of BMI Accuracy (Interpersonal)

Studies have found that parents often underestimate their child's weight and do not perceive their child as obese or overweight (Adedze, Chapman-Novakofski, Witz, Orr, &

Donovan, 2011; Dalton, Klesges, Beech, Kitzmann, Kent, & Morris, 2007; Eckstein et al., 2006; Etelson, Bran, Patrick, & Shirali, 2003). This may possibly be the first step in the prevention or intervention process; however, many factors such as cultural differences (Young-Hyman, Herman, Scott, & Schlundt, 2000), education level of the parents, having an imprecise definition of overweight and obesity, and having obese parents (Payas, Budd, & Polansky, 2010; Young-Hyman et al., 2000) may contribute to the misperception of weight status. Furthermore, parents may not want to accept their child is obese or discuss it with their child because it may lead to self-esteem or eating disorders (Davis et al., 2008).

Due to cultural preferences for a larger body size in the African American community, parents are unlikely to report their child is obese (Doolen et al., 2009; Goodell et al., 2008; Towns & D'Auria, 2009; Young-Hyman et al., 2000). Baughcaum, Chamberlin, Deeks, Powers, and Whitaker (2000) reported low income minority parents prefer heavier children because they believe they are growing. Similar studies stated that parents believed children would outgrow their obesity when they were older (Maynard, Galuska, Blanck, & Serdula, 2003; Davis et al., 2008). However Bryan, Solmon, Zanovec, and Touri (2011) proclaimed that a higher BMI in African American youth is usually due to more fat-free mass.

Parents of obese children are in disbelief that they can influence their child's weight, diet, and physical activity as much as parents of healthy weight children (Goodell et al., 2008; Nsiah-Kumi, Ariza, Mikhail, Feinglass, & Binns, 2009). This may suggest parents of healthy weight children have higher self- efficacy. In addition, it has been found that maternal perception and education levels determine if mothers perceive their child as obese (Adedze et al., 2011; Baughcum et al., 2000; Doolen et al., 2009; Eckstein et al., 2006).

Furthermore, studies have asserted minority parents have an inaccurate clinical definition of obesity and weight is not included in their definition of health (Goodell et al., 2008; Hernandez, Cheng, & Serwint, 2010). Parents do not use growth charts or scales to measure their child's weight (Goodell et al., 2008). The parents may not understand these instruments and these instruments may not take the individuality of the child into consideration. Thompson and Story (2003) found parents insist that growth charts were ethnically biased and invalid. Concluding health care professionals should provide parents with visual aids that represent their child. Furthermore, healthcare professionals should emphasize the health risks of obesity and not the weight status of the child (Hernandez, Cheng, & Serwint, 2010).

Barriers and Facilitators of the Built Environment (Community)

The built environment plays a pivotal role in the reduction and prevention of childhood obesity. The features of the built environment include access to healthy foods and recreational parks and facilities and adequate housing in neighborhoods (Singh, Siaphpush, & Kogan, 2010). These features are associated with low obesity rates in children (Gordon-Larsen, Norton, Page, & Popkin, 2006; Singh, Siahpush, & Kogan, 2010a; Wardle, Jarvis, Steggles, Sutton, Williamson, & Farrimond, 2003) and were included in the reviewed studies of the literature. In addition, it has been found that higher levels of perceived neighborhood safety are associated with higher physical activity levels and lower obesity risks in children (Singh, Kogan, Van Dyck, & Siapush, 2008). The structure in which the built environment is created can affect adopting health lifestyle habits such as biking or walking to school, playing at recreational parks and facilities, and eating at fast food restaurants.

Physical Activity Sites in the Neighborhood

African American neighborhoods are less likely to have recreational parks and facilities (Alexander et al., 2013) helping to create obesogenic environments (Swinburn, Egger, & Raza, 1999). Children and adolescents with access to recreational facilities and parks near their homes are more likely to be physically active than those without access (Gordon-Larsen, Nelson, Page, & Popkin, 2006). Access to parks and recreational facilities motivate children to play outside because it provides an opportunity to meet and play with other children. Also, playgrounds that are close in proximity to sidewalks and safe roads have been associated with higher levels of physical activity (Davison & Lawson, 2006).

Additionally access to numerous recreational facilities is associated with a decrease in obesity (Gordon-Larsen et al., 2006). Physical activity facilities including recreational clubs, golf courses, dance facilities, and physical centers were not likely to be found in low income and minority communities; thereby, increasing the prevalence rates of childhood obesity (Alexander et al., 2013). Minority groups and individuals of low socioeconomic status are less likely to have at least one facility (Gordon-Larsen et al., 2006). The implications of prior studies include lack of recreational facilities may contribute to ethnic and socioeconomic status disparities in physical activity and obesity (Singh, Siahpush, & Kogan, 2010a).

Safety

Safety is a neighborhood barrier that has been studied extensively demonstrating that it is an underlying reason of why a child will or will not participate in outdoor activities in their environment (Moore et al., 2010; Wilson, Lawman, Segal, & Chappell, 2011; Yousefian, Ziller, Swartz, & Hartley, 2009). Babey and colleagues (2008) affirmed that access to unsafe neighborhoods and parks were associated with higher levels of physical inactivity. Therefore,

children who reside in unsafe neighborhoods have a higher susceptibility of becoming obese (Lovasi, Hutson, Guerra, & Neckerman, 2009; Rahman, Cushing, & Jackson, 2011; Singh, Siahpush, & Kogan, 2010a). Implications of different studies suggest that the relationship between physical activity and access to parks differ by adolescents' sociodemographics, housing, and neighborhood characteristics (Davison & Lawson, 2006; Lovasi et al., 2009; Rahman, Cushing, & Jackson, 2011). In addition, traffic and graffiti in the physical environment discourages outdoor activities by increasing perceived danger within the community (Franzini et al., 2009).

Interventions

Multiple interventions have been conducted to reduce and treat childhood obesity (Bluford, Sherry, & Scanlon, 2007; Campbell, & Hesketh, 2007; Doak, Visscher, Renders, & Seidell, 2006; Oude, Baur, Jansen, Shrewsbury, O'Malley, Stolk, & Summerbell, 2009; Saunders, 2007; Summerbell Waters, Edmunds, Kelly, Brown, & Campbell, 2005); however, these interventions have not been effective because of their design, methodology, and replication (Birch & Ventura, 2009; Thomas, 2006; Summerbell et al., 2005). Limitations found in interventions included not using a theoretical framework (Kitzman- Ulrich, Wilson, St. George, Lawman, Segal, & Fairchild, 2010; Summerbell et al., 2005), lack of sustainability (Huang, & Grimm, 2011; Stice, Shaw, & Marti, 2006; Prinz, Smith, Dumas, Laughlin, White, & Barron, 2001), sampling (Williamson, Champagne, Harsha, Han, Martin, Newton, Stewart, & Ryan, 2008), researchers not accounting for demographic factors (i.e., socioeconomic status and sex), culture, and inadequate sample sizes. In addition, many interventions focus on behavioral risk factors (Kremers, Vissscher, Seidell, Van Mechelen, & Brug, 2005; Savoye, Shaw, Dziura, Tamborlane, Rose, Guandalini, Goldberg-gell, Burgert, Cali, Weiss, & Caprio, 2007), which is

not adequate because childhood obesity is a multi-dimensional problem. Interventions that do not acknowledge the complexity of the problem are commonly deemed irrelevant and ineffective (Heading, 2008).

Currently, intervention research has determine parents involvement is vital in treating and preventing obesity (Davison, Jurowski, Kaigang, Kranz, & Lawson, 2013; Nowicka, & Flodmark, 2008; Young, Northern, Lister, & Drummond, 2007). Research examining parent-only interventions found a reduction in weight status among children and were more cost-effective (Boutelle, Cafri, & Crow, 2011;Janicke, Sallinen, Perri, Lutes, Silverstein, & Brumback (2009). Interventions and studies have shown that parents can be effective in weight loss and control among their children (Epstein et al., 1990; Golan, 2006). Yet, more interventions should include and assess parents effectiveness in preventing and treating childhood obesity (Bluford et al., 2007) and not make them insignificant factors in larger interventions (Hingle, O'Connor, Dave, & Baranowski, 2010; O'Connor, Jago, & Baranowski, 2009; Stice, Shaw,& Marti, 2006). Although researchers may conduct formative assessments with the parent, parents have no control over the design, implementation, and methodology of the intervention. Furthermore, preventing and reducing childhood obesity is likely to be more sustainable if it is implemented in the home setting and expands to the school and community setting.

The literature reveals that most interventions have been conducted in the school setting (Branscum & Sharma, 2012) including teaching the students about nutrition, how to decrease sedentary behaviors, and modifying food policies and physical activity requirements (Gonzalez-Suarez, Worley, Grimmer-Somers, & Dones, 2009). Some interventions that have been conducted in the school setting employed theoretical frameworks such as the Ecological Model (Lee, Ho, & Keung, 2009) and Social Cognitive Theory (Annesi & Vaughn, 2011; Dzewaltoski,

Rosenkranz, Geller, Coleman, Welk, Hastmann, & Miliken, 2010; Freedman & Nickell, 2010) creating an encouraging environment where students acquire health skills that will prevent obesity. The Social Cognitive Theory is the most frequently cited theory in obesity prevention research. In prior studies self-efficacy was found as the most repeatedly used construct. However, more research is needed in applying theoretical constructs into programmatic activities (Branscum & Sharma, 2010).

Although much obesity research is being implemented in the school setting, studies are revealing these interventions are not as effective because they are not producing short or long-term results (Connelly, Duaso, & Butler, 2007; DeMattia, Lemont, & Meurer, 2007; Doak, et al., 2006; Sharma, 2006; Sharma, 2006). This may be a result of the intervention duration, which varies among interventions. According to Cook-Cottone et al. (2009), interventions ranging from 0-12 weeks are categorized as short, 13-27 weeks are low moderate, 28-32 weeks are moderate, and greater than 32 weeks are considered long. More short interventions (Branscum & Sharma, 2012) have been conducted, which could possibly have a small impact on the variables. In addition, studies have concluded that BMI changes in children have been minor or not statistically significant (Cook- Cottone, Casey, & Feeley, 2009; Gonzalez-Suarez et al., 2009; Kanekar & Sharma, 2009; Katz, O'Coneel, Nijke, Yeh, & Nawaz, 2008).

Theoretical frameworks

Theories and models are employed to explain, predict, and change behaviors of individuals. An understanding of theories and models can guide public health professionals on how to measure the influence of behaviors on multiple levels (Glanz, Rimer, &Viswanath, 2008). Furthermore, a theory can assist in segmenting audiences and determining their desired

actions. The Social Ecological Model (McLeroy et al., 1988) and Social Cognitive Theory (Bandura, 1977) was selected to aid in the development and implementation of the interview guide and survey. The model and theory are unique because the interaction between people, their physical environment, and its relationship to people at an intrapersonal, interpersonal and community levels are being examined (Davison & Birch, 2001; Glanz, Rimer, & Viswanath, 2008). Applying the Social Ecological Model and Social Cognitive Theory may allow public health professionals to create and implement effective culturally tailored programs and interventions for childhood obesity.

To assess parental perceptions in the role of childhood obesity a Social Ecological approach was employed integrating the physical environment and the relationship to the parents and children at the intrapersonal, interpersonal, and community levels (see Figure 2.1). By employing this model, a public health professional can make a significant impact on three out of the five levels of influence. At times, the five levels of the Social Ecological Model can be condensed to three for the purposes of intervention development and program planning (McKenzie, Neiger, & Thackeray, 2009). Table 2.1 provides the definition of the levels of the model.

Table 2.1
Social Ecological Model Levels

Levels	Definition
Intrapersonal	Individual characteristics that influence behavior.
Interpersonal	Social networks and support that provide social identity.
Organizational/Institutional	Regulations and policies that promote or stop recommended behaviors.
Community	Relationships that exist among individuals, groups, and organizations.
Public Policy	Local, state, and federal policies that regulate or support healthy lifestyles.

Note. Glanz, K., Rimer, B.K., & Viswanath, K. (2008). *Health Behavior and Health Education: Theory, Research, and Practice* (4th ed.). San Francisco: Jossey-Bass. McLeroy, K.R. Bibeau, D., Steckler, A.,& Glanz, K. (1988). An ecological perspective on health promotion programs. *Health Education Behavior*, 15, 351-376.

The Social Cognitive Theory (Bandura, 1977) describes a dynamic process in which personal factors, environmental factors, and human behavior exert influence upon each other (see Figure 2.1). Concepts and processes from cognitive, behavioral, and emotional models of behavior change are integrated into this theory; thereby, ensuring a holistic approach on the problem. The theory has been applied successfully in interventions ranging from physical activity habits to dietary change (Glanz, Rimer, & Viswanath, 2008). This theory is comprised of thirteen concepts: 1) reciprocal determinism; 2) environment; 3) situation; 4) behavioral capability; 5) outcome expectations; 6) outcome expectancies; 7) self-efficacy; 8) collective efficacy; 9) observational learning; 10) incentive motivation/ reinforcements; 11) facilitation; 12) self-regulation; and 13) moral disengagement (Glanz, Rimer, & Viswanath, 2008). Table 2.2 provides a definition of each concept. Furthermore Bandura (2004) proposes that individuals,

who are unaware of their lifestyle habits affect their health, have little motivation to change their habits. Therefore, awareness of the childhood obesity problem may create the precondition for change (Trexler & Sargent, 1993).

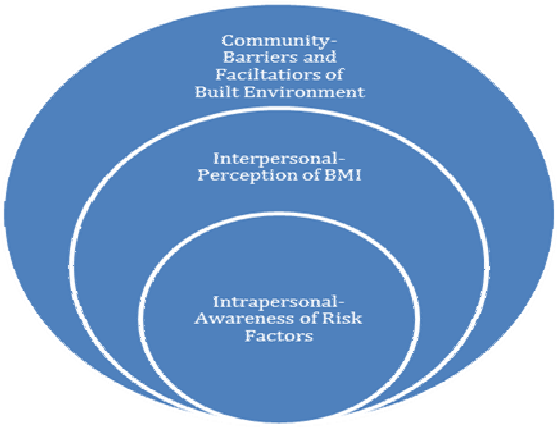

Figure 2.1 The three components of the definition of parental perceptions in the study that correspond to the Social Ecological Model and Social Cognitive Theory.

Table 2.2
Social Cognitive Theory Concepts

Concept	Definition
Reciprocal Determinism	The interaction between the individual, behavior, and environment.
Environment	The external factors that influence the behavior of the individual.
Situation	The individual's perception of their environment.
Behavioral capability	The individual's knowledge and skill set that can be used to perform the behavior.
Outcome expectations	What the individual anticipates will happen if he/she engages in the behavior.
Outcome expectancies	The value the individual places on the behavior outcome.
Self-efficacy	The individual's belief of performing a particular behavior.
Collective efficacy	A group's belief of performing actions resulting in the desire outcomes.
Observational learning	The process of learning new behaviors by watching role models.
Incentive motivation/ Reinforcements	The process of rewarding or punishing to modify a behavior.
Facilitation	Providing resources which alleviate the stress of performing new behaviors.
Self-regulation	How well a person regulates their behavior.
Moral disengagement	Strategies that individuals employ to distance themselves from the harm that certain behaviors may cause.

Note. Bandura, A. (1977). *Social Learning Theory*. New Jersey: Prentice-Hall, Inc. Glanz, K., Rimer, B.K., & Viswanath, K. (2008). *Health Behavior and Health Education: Theory, Research, and Practice* (4th ed.). San Francisco: Jossey-Bass.

Research demonstrates a variety of theories and models have been used to address parents and childhood obesity, which include the Theory of Planned Behavior (Andrews, Silk, & Eneli, 2010; Contento, Koch, Lee, Sauberli, & Calabrese-Barton, 2007), Embodiment Theory

(Scott & Wilson, 2011), Health Belief Model (Vann, Finkle, Ammerman, Wegner, Skinner, Benjamin, & Perrin, 2011), Diffusion of Innovations Model (Vann et al., 2011), and Transtheoretical Model (Patrick, Sallis, Prochaska, Lydston, Calfas, Zabinski, & Brown, 2001; Sealy & Farmer, 2011; Topp, Jacks, Wedig, Newman, Tobe, & Hollingsworth, 2009; Vann et al., 2011). Therefore, employing theories allows public health professionals to view the problem holistically; thus, helping to decrease the prevalence rates of childhood obesity.

Summary

Childhood obesity is a public health concern among African American children who reside in rural communities. There is insufficient research on the relationship between African American perceptions of childhood obesity within rural communities. It is important for public health professionals to conduct research on this relationship because the literature and effective programs and interventions are inadequate in rural settings. These prior studies and interventions have provided substantial implications that can aid in research occurring in rural areas among African American parents.

The studies and interventions in the literature review examined small sample sizes, samples that were not generalizable to rural settings, and samples which included predominantly Anglo American participants (Boutelle, Cafri, & Crow, 2011; Etelson et al., 2003; Goodell et al., 2008; Hernandez, Cheng, & Serwint, 2010). Also, no studies were found to addressed the underlying causes of the parental disconnect between perception and actual weight status of their children. Most of the studies employed intrapersonal theories such as the Theory of Planned Behavior, Health Belief Model, and Transtheoretical Model. Intrapersonal theories assert an individual is a distinct entity; thereby, eliminating the influence the environment and others have

on an individuals' behavior (Goodson, 2010). The interpersonal and community levels should be included because parent's perceptions on childhood obesity require a systems thinking approach.

Adedze et al. (2011) concluded using the Social Ecological Model is important for the relationship between parental perception and childhood obesity because of the multiple influences and interactions on the behavior of the parent and child. However, this study was not conducted in a rural setting. Conversely, Sealy and Farmer (2011) established that parental knowledge was not associated with the Stages of Change construct in the Transtheoretical Model. According to Glanz et al. (2008), studies that utilized only one construct of a theory will produce 40% of significant effects, which means the Sealy and Farmer (2011) study was ineffective because all of the constructs were not employed.

The Theory of Planned Behavior (Andrews et al., 2010) and the Health Belief Model (Vann et al., 2011) studies found that parent's lack of knowledge influenced their child's decision on adopting a healthy lifestyle. However, the Theory of Planned Behavior and Health Belief Model are not communication models thus researchers cannot design and deliver persuasive messages to the target population about their behaviors (Glanz et al., 2008). Also, three of the theories were construct-driven rather than theory-driven. Implications of this literature review may demonstrate to policy makers and the media that educating children on childhood obesity starts in the home environment.

The literature review has provided substantial information on why public health professionals should focus on exploring parental perceptions of childhood obesity among African American parents residing in rural locations. Obesity is the result of consuming more calories than the body uses and this energy imbalance can be perpetuated by not knowing the risk factors and health complications of obesity, inaccurate perceptions of weight status , and

inaccurately identifying the barriers and facilitators of the built environment that increase susceptibility to childhood obesity. Intrapersonal, interpersonal, and community factors all contribute to childhood obesity. More studies are needed to examine all of these factors. In addition, studies need to be conducted in rural settings because these residents have higher rates of obesity. Rural children are more likely to have poor health outcomes due to low socioeconomic status and limited access to healthcare, healthy foods, and physical activity venues. Thus, it is important to determine the extent to which parental perceptions in rural settings can explain the risk of obesity because such findings may result in policies, programming, and interventions.

Definitions

Body Mass Index (BMI) – is an estimation of the child's body fat calculated from the child's weight and height (CDC, 2011c).

Parent- an individual who has legal guardianship of the child.

Parent perceptions- the awareness of risk factors and health complications, their child's weight status, and identifying barriers and facilitators in their child's built environment.

Obese- a BMI at or above the 95th percentile for children of the same age and sex (Barlow, 2007; CDC, 2011c).

Obesogenic environments- an environment that encourages sedentary behaviors and provides access to high caloric foods (Swinburn, Egger, & Raza, 1999).

Overweight- a BMI at or above the 85th percentile and lower than the 95th percentile for children of the same age and sex (Barlow, 2007; CDC, 2011).

Rural- 1) an area that is not included in an urban area (DHHS, n.d.); 2) an area that includes all population, housing, and territory that is not included within an urban area (United States Census Bureau, 2013); 3) a place with a population of less than 20,000 individuals (United States Department of Housing and Urban Development, 2013); and 4) a town with less than 2,500 individuals (Economic Research Service, 2013).

Screen time- the amount of time the child watches television, plays video games, or uses the computer not for homework purposes.

Chapter 3

METHODS

This chapter describes the population and sample, sampling procedures, instrumentation, data collection procedures, and analysis process of the study. A concurrent mixed methods design was used for the study. According to Tashakkori and Teddlie (1998), a mixed method study is a combination of quantitative and qualitative methods that can be a single or multi-phase study. A mixed methods study may include philosophical assumptions that guide the data collection and mixing of both methods to provide a better understanding of the research questions (Creswell & Plano Clark, 2007). The advocacy/ participatory philosophical worldview was selected for this mixed methods study because it is suitable to address the research questions. Gathering quantitative and qualitative data concurrently provided the best method for this study because researchers and practitioners can possibly design programs and interventions after assessing the parent's perceptions employing the research instruments from this study.

Purpose of the Study

The rationale for selecting this design was to explore in-depth the perceptions of childhood obesity among the African American population residing in a rural county (Creswell, 2009; Morse, 1991). By employing a mixed methods study, this provided a richer description of the context. Moreover, the combination of both data sources targeted specific issues about perceptions that the quantitative survey or qualitative interview were not able to do alone. The surveys identified statistically and practically significant predictors of behaviors among the target population; whereas, the interviews explored and verified the actual behaviors of the participants and issues related to living in a rural community.

Study Design

Before beginning the study, approval was obtained from the Georgia Southern University Institutional Review Board (IRB) and County School Board. The study's methodological approach included: 1) collecting both quantitative and qualitative data concurrently, but separately; 2) analyzing the quantitative and qualitative data; 3) mixing the results of the two data sets; and 4) interpreting to what extent the quantitative and qualitative data converge to provide a better understanding of the problem (Creswell, 2009). Equal priority was given to the quantitative and qualitative components of the study (Creswell, 2009). The use of this mixed-methods design strengthened the purpose of the study and research questions. A visual diagram of the procedures for this concurrent mixed methods design is presented in Figure 3.1.

Justification of Concurrent Mixed Methods

A quantitative and qualitative approach yields the desired results of the study. The purpose of the quantitative data was to provide a numeric description that may be generalized to the specific population and provide tests of prediction. Specifically, quantitative findings are important because they help generalize the perceptions of African American parents. The purpose of the qualitative data was to understand and explore the target population reality (Patton, 2002). Qualitative findings were important to the study because the researcher learned the perceptions of African American parents in detail (i.e., breadth). Therefore, this design allowed the researcher to obtain different, but complementary data on African Americans perceptions of preventing childhood obesity (Morse, 1991). It was important for the researcher to mix the two data sets together to understand the problem holistically (Creswell, 2009). Mixing of the data combined the strengths and weaknesses of each method; thereby, producing rigor in

the study (Patton, 1990). In addition, the researcher formed a team that was comprised of quantitative and qualitative experts who assisted in ensuring validity of the study.

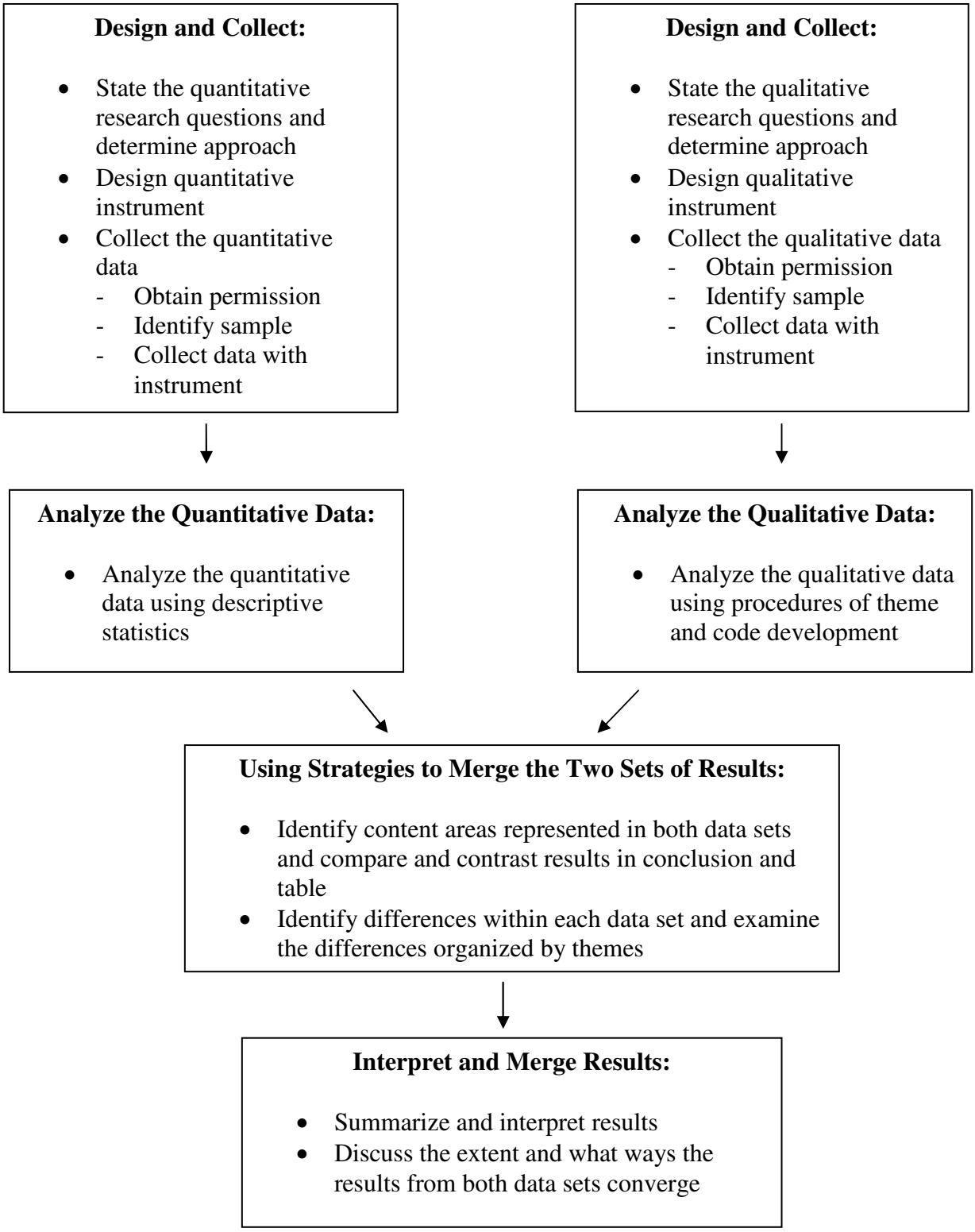

Figure 3.1 Visual Model of Concurrent Mixed Methods Design (Creswell & Clark, 2011)

Study Population and Sample

The elementary school is located in the East Central part of Georgia. As of 2012, the total population was 23,125 residents in the county with a median household income of $32,188 (United States Census Bureau, 2013). There are five public schools in this county including the participating elementary school. The elementary school is comprised of third through fifth graders. Out of 863 students (male= 438; female= 425), 69.6% (n= 595) are African American. Seven hundred and thirty-four students attending the school are eligible for free or reduced-price lunch. This school was chosen for this study because it contains a high population of African American students compared to other schools in this county and it is centrally located in the county. Therefore, participants are likely to reside in multiple areas in the county. The sample in this study included African American parents who were 18 years of age and older whose child attended the elementary school and resided in the county. If a parent had two or more children who attended the school, the child who had a higher weight status was included in the study because the parent could provide insightful perceptions of childhood obesity.

Recruitment of Participants

The researcher gained access into the elementary school through a consultant position on a prior obesity prevention project. The researcher presented the proposed study to the County School Board on July 9, 2013. Once approved by the school board, the researcher met with the Principal, Instructional Coordinator, and Parent Coordinator of the elementary school to discuss additional recruitment strategies and identify potential dates in August, September, October, and November of 2013 to recruit the parents. The Principal invited the researcher to attend the school's open house. At the open house, the researcher informed the parents of the study's purpose, methodology, and answered questions. Six-hundred invitational letters were sent home

with all African American children the first week of school (see Appendix A). Surveys and informed consents were sent home the second week of school in August 2013 (see Appendix B and E). If parents signed the consent form they voluntarily agreed to participate in the study, which included completing the survey and participating in an interview. During monthly parent meetings, the researcher explained the study in detail including how the study will benefit the school, why this study is important, how confidentiality would be maintained, and any questions the potential participants had regarding the study. Potential participants contacted the researcher by phone if they had questions about the study or could not attend the meetings.

Sampling Procedures

The nonprobability sampling method that was employed for the quantitative and qualitative aspects was convenience sampling. The sample was comprised of African American parents whose children ages 8-11 years attended the school and resided in the county. The sampling frame consisted of one school. The total number of African American students was five hundred and ninety-five. Participants who were interviewed voluntarily signed their names on an additional piece of paper attached to the survey. These participants were contacted three times by the researcher by phone. The participants who responded to the initial phone calls from the researcher were interviewed. The researcher stopped interviewing participants once saturation was reached.

Instrumentation

Parent Survey

A survey was employed providing a numeric description of perceptions and strategies to prevent childhood obesity among the population sample (Creswell, 2009; Fink, 2003a). This method was used because surveys assessed the individual's awareness, no interviewer bias was

present, and it was convenient for the participants (Bernard, 2013; Fink, 2003b; McKenzie, Neiger, & Thackeray, 2009). A survey instrument was not available to assess African American parental perceptions of childhood obesity; therefore, the development of the survey questions was guided by the literature review, the research questions of the study, the Social Ecological Model and Social Cognitive Theory, and utilizing concepts from existing surveys. (CDC, 2013; Data Resource Center for Child & Adolescent Health, 2012; Eckstein et al., 2006; Henry J. Kaiser Family Foundation, 2004; Kerr, Sallis, Rosenberg, Norman, Saelens, & Durant, 2008; National Survey of Children's Health [NSCH], 2012). Concepts were modified to correspond to the potential participant's responses as well as the context of the study. Table 3.1 provides an outline of the concepts employed in the instruments.

A twelve step process for developing an instrument was employed (McDermott & Sarvela, 1999). The process included: 1) determine the purpose and objectives of the proposed instrument; 2) develop instrument specification; 3) review existing instruments; 4) develop new instrument items; 5) develop directions for administration and examples of how to complete items; 6) establish procedures used for scoring the instrument; 7) conduct a preliminary review of the instrument with colleagues; 8) revise the instrument based on review; 9) pilot test the instrument with 20-50 subjects; 10) conduct item analysis, reliability, and validity studies; 11) provide instrument specifications and pilot study data to a panel of experts for review; and 12) revise the instrument based on comments from the panel of experts (McDermott & Sarvela, 1999).

Table 3.1

Concepts of the survey items

Items	Concepts and constructs
Perceptions of childhood obesity	
1. Lack of money increases the risk of childhood obesity.	Outcome expectations
2. Lack of physical activity increases the risk of childhood obesity.	Outcome expectations
3. High calorie food advertising increases the risk of childhood obesity.	Outcome expectations
4. Poorly kept housing increases the risk of childhood obesity.	Situation
5. Watching television and playing video games increases the risk of childhood obesity.	Outcome expectations
6. Eating foods that have too much fat and sugar increases the risk of childhood obesity.	Outcome expectations
7. Parent's eating habits influences a child's risk for obesity.	Behavioral capability
8. If a parent is obese their child is likely to become obese.	Situation
9. It is important for me to exercise so that my child exercises.	Behavioral capability
10. I can help my child have a healthy lifestyle.	Behavioral capability
11. The close ties of a community are a factor in the risk of childhood obesity.	Situation
12. Childhood obesity is an important health problem among African American children.	Situation
Perceptions of health concerns	
13. If a child is obese, he/she is more likely to develop ASTHMA.	Outcome expectations
14. If a child is obese, he/she is more likely to develop DIABETES.	Outcome expectations
15. If a child is obese, he/she is more likely to have a STROKE.	Outcome expectations
16. If a child is obese, he/she is more likely to develop CANCER.	Outcome expectations
17. If a child is obese, he/she is more likely to develop BONE and JOINT problems.	Outcome expectations
18. If a child is obese, he/she is more likely to be INFERTILE.	Outcome expectations
19. If a child is obese, she is more likely to have IRREGULAR MENSTRUAL CYCLES.	Outcome expectations
Perceptions of child's weight	
20. My child about whom I am answering questions looks MOST like:	Interpersonal
21. I am concerned about my child's weight.	Interpersonal
22. My child is the appropriate weight for his/her age.	Interpersonal
23. My child is obese right now.	Interpersonal
24. With my help I can prevent my child from becoming obese.	Behavioral capability
25. I can influence my child's weight.	Behavioral capability
26. My child is underweight.	Interpersonal
27. My child is overweight, but not obese.	Interpersonal
28. My child's weight status is related to his/her health problems.	Outcome expectations
29. My child's doctor discusses my child's weight with me.	Behavioral capability
30. My child's doctor has explained and shown me a growth chart.	Self-regulation
31. There is a difference between obesity and overweight.	Behavioral capability

Table 3.1 Continued

Perceptions of barriers and benefits in the community

32. My child feels safe in my community.	Situation
33. Litter or garbage on the streets can prevent my child from exercising.	Situation
34. Stray dogs in my community can prevent my child from exercising.	Situation
35. There are not enough areas in my community for my child to participate in physical activity.	Situation
36. Traffic can prevent my child from playing in our community.	Situation
37. Lack of community programs increase childhood obesity.	Situation
38. My child having a playmate in the neighborhood can prevent obesity.	Situation
39. There are health programs in my community that focus on obesity.	Situation
40. Some of the activities within my community can motivate my child to participate in physical activity.	Situation Situation
41. Parks, playground areas, recreational centers, and community centers play a role in preventing childhood obesity.	Situation
42. Safe communities encourage physical activity among children.	Situation

Perceptions and importance of childhood obesity strategies

43. Schools play a role in my child developing healthy behaviors.	Situation
44. My child's school can prevent childhood obesity more than I can.	Situation
45. My child's doctor has told me what I should do to prevent my child from becoming obese.	Self-regulation
46. My community can prevent childhood obesity more than I can.	Situation
47. I encourage my child to drink water instead of sugary drinks.	Behavioral capability
48. I provide education about healthy behaviors to my child.	Behavioral capability
49. I provide low-fat meals to my child to prevent obesity.	Behavioral capability
50. I have the income to help prevent my child from becoming obese.	Self-regulation
51. Limit time for TV, DVDs, video games	Self-regulation
52. Have my child participate in an after-school program	Self-regulation
53. Limit portion sizes at meals	Self-regulation
54. Talk to a health professional about my child's weight status	Self-regulation
55. Provide health snacks	Self-regulation
56. Participate in exercise with my child	Behavioral capability
57. Read nutritional labels	Self-regulation
58. Limit high calorie foods	Self- regulation
59. Talk to community members and leaders about having more programs in my community.	Behavioral capability

The first survey pretest (see Appendix C) was conducted with six participants in the Richmond County Health Department in Augusta, Georgia. The researcher sat with each participant individually and reviewed each survey question in a secluded office. The participants were asked: 1) what does the question mean to you; 2) is there a better way of asking it; 3) what do the response choices mean; 4) if you were given the choice between two types of response formats which is a better format; 5) do you understand this question; 6) what did you think of the survey; and 7) did you find anything confusing about the survey? In addition, the pretesting strategies that were employed included think aloud and talk aloud.

At the end of each pretesting, the researcher asked if the participant had any other comments or suggestions regarding the survey such as do you feel anything is being excluded, what other questions should be included in this survey, and do you feel that any questions need to be further explained. The researcher then revised the survey after the first pretest. A second pretest was conducted with nine different participants at the Richmond County Health Department and another revision occurred. A pilot test (see Appendix D) was conducted with thirty participants (Bernard, 2013; McDermott & Sarvela, 1999) and the researcher incorporated the participant's comments into the final instrument revisions. From the pretesting and piloting results, the researcher made inferences about the perceptions of the target population, which lead to the final survey (see Appendix E).

The final survey format (see Appendix E) was comprised of five sections including perceptions of childhood obesity, perceptions of child's weight, perceptions of barriers and benefits in the community, perceptions and importance of prevention strategies, and demographic information. Parents were asked to respond to fifty-nine questions, using two five-point level of agreement Likert scales (e.g., 1= Strongly disagree, 2= Disagree, 3= Neither, 4=

Agree, 5= Strongly agree; 1= Not at all important, 2=Slightly important, 3=Somewhat important, 4= Moderately important, and 5= Extremely important). The survey was anonymous and comprised of closed-ended questions. The closed-ended questions were designed to reflect factors in prior research that may possibly relate to parents perceptions of preventing childhood obesity. According to the piloting results, the completion of the survey took approximately 20 to 30 minutes.

Reliability and Validity

Interrater reliability was used to assess consistent estimates of the variables being measured by both data coders (Fink, 2003a). Prior to coding, the researchers had a meeting to discuss the inputting of survey data. A kappa statistic (Minimum: 0.9439 and Maximum: 1.000) was calculated to assess the interrater reliability. According to Landis and Koch (1977), the agreement level between both coders for the survey used in this study was substantial to almost perfect. Face validity of the survey was assessed by the participants who participated in pretesting and piloting (Fink, 2003a).

Also, pretesting and piloting helped establish content validity of the instrument and improved the questions, format, and scales (Creswell, 2009). To enhance the content validity of the survey, content experts reviewed the appropriate scales and order of the questions and commented on the validity of the survey. Experts included Drs. Larissa R. Brunner Huber, Robert McDermott and Ashley Walker. Dr. Huber is an Epidemiologist at the University of North Carolina at Charlotte who teaches and conducts extensive research on chronic illnesses. Dr. McDermott is a researcher and practitioner who has designed, implemented, and evaluated community-based health behavior programs including childhood obesity. Dr. Walker has worked closely with public health agencies in Georgia to reduce the health disparities in rural

communities. In order to enhance the specificity and transparency of the characteristics and qualifications of the experts their qualifications are listed in Appendix I. The content experts were asked to provide suggestions for what should be added or deleted to the survey. Modifications were made to the survey based on the suggestions from the panel of experts. Furthermore, the dissertation committee is comprised of individuals who have conducted studies on childhood obesity, nutrition, and perceptions of weight status.

After the instrument was reviewed by the experts and revised as necessary, it was administered to five parents at the Richmond County Health Department who were not included in the study population. These parents provided feedback regarding the understandability of the survey questions. In addition, this helped to evaluate the readability of the survey and provided an accurate estimate of the time needed to complete the survey. The Flesch Reading Ease and Flesch-Kincaid Grade level assessed the readability of the survey as well. The final survey read at a seventh grade reading level.

Parent Interview

An interview was conducted for this study because it allowed the researcher to receive information about the target population's perceptions of preventing childhood obesity to clarify survey results and develop rapport with participants. In addition, interviews are useful when participants cannot be directly observed, participants can provide historical information, and researchers can control the line of questioning (Creswell, 2009; Patton, 2002). The researcher developed the interview questions by aligning the guide with the research questions and survey questions, reviewing the literature, the Social Cognitive Theory, and Social Ecological Model. Pretesting was conducted on five individuals in the Richmond County Health Department (see Appendix F). These participants were similar to the target population. The participants were

asked: 1) what does the question mean to you; 2) is there a better way of asking it; and 3) do you understand this question? In addition, the pretesting strategies that were employed included think aloud and talk aloud. According to the piloting results, the completion of the interview took approximately 30 minutes to an hour. Piloting was conducted with five parents in the Richmond County Health Department (see Appendix G). Pretesting and piloting of the interview guide was conducted in a secluded office in the health department. The final interview guide consisted of a heading (including the participant's interview number, date, place, time), informed consent information, and fourteen semi-structured questions which mirrored the five sections of the survey (see Appendix H).

Confirmability and Trustworthiness

Prior to conducting the interview, the guide was shared with two qualitative researchers. Dr. Alison Scott, a qualitative researcher, who examines the social determinants of health in vulnerable populations. In addition, Dr. Moya Alfonso, chair of the dissertation committee who has conducted research on childhood obesity. This feedback was incorporated into the final product. These individuals' skills and expertise are listed in Appendix J.

Confirmability was established by checking the transcripts for accuracy and establishing definitions for codes and themes (Gibbs, 2007). This was determined by the ability of the researcher to accurately portray the perspectives of the participants (Lincoln & Guba, 1985). To validate the findings three methods were employed to determine if the information was accurate: 1) the researcher checked with the participants on the accuracy of the codes and themes; 2) rich and thick descriptions were provided to convey the findings (Creswell, 2009); and 3) intercoder agreement was used to assess the agreement on themes between data coders (Bernard, 2013). Data coders separately examined the interview transcripts then developed a codebook. Both

codebooks were similar in nature, but contained different terminology. Coders then coded all transcripts. A meeting was held so that the coders would reach an agreement about the codes. In this meeting the coder's experienced interpretive convergence in which a repeated discussion about the texts resulted in their interpretations converging (Hak & Bernts, 1996). In three different cases the data coders used different terms, but were interpreting the same theme. The percentage of agreement was 100%. This percentage was considered a perfect level of agreement (Bernard, 2013).

Different strategies were employed to enhance trustworthiness. First, the researcher conducted reflexivity (Patton, 2002) by journaling about the research study and discussing the study with other researchers to ensure confirmability. Second, the researcher established credibility by allowing the participants to check the researcher's interpretations and conclusions after the interview was conducted. Third, to establish dependability an external audit of the process and product was conducted by Dr. Gavin Colquitt who was not involved in the research study. Dr. Colquitt's comments are referenced in Appendix K.

Data Collection Procedures

The elementary school teachers administered the surveys to the parents by placing the manila envelopes containing the surveys and informed consents in the student's backpacks. The students then gave the envelopes to their parents. If parents agreed to participate in the study, they signed the informed consents and completed the survey. The teachers tracked the envelopes by using a tracking log developed by the researcher. The teachers then returned all packets to the Parent Coordinator. Also, the researcher sent out two hundred randomly assigned follow-up surveys. The researcher placed the first set of surveys into the teacher's mailboxes with the last names beginning with A-M. Each teacher received 6-7 surveys. The teachers were instructed to

administer the surveys by randomly selecting every third students. After two weeks, the second set of surveys was placed into teacher's mailboxes with the last names beginning with N-Z. Teachers were provided with the same set of instructions. Students returned uncompleted and completed surveys (n=10). The researcher collected all envelopes twice a week from August to November 2013.

The researcher has previous experience with arranging and conducting interviews. Therefore, the researcher conducted all interviews explaining her role and the study using informal language and a casual style to ease the participants during the interviews. After explaining the purpose of the interview, the researcher reminded the participants of their rights outlined in the consent form. Participants were assigned an identification number by the researcher before the interview began. Twelve interviews were conducted with the participants until saturation occurred. All interviews were held in a convenient location for the participant. Four interviews were held in the participant's home, six were conducted at the school, one was conducted by telephone, and the final one was conducted at the local high school. The interviews took approximately 30 to 45 minutes. Probes used in the interview include the 'uh-huh' probe, the silent probe, and the echo probe (Bernard, 2013). All interviews were audio-recorded so the researcher was attentive to non-verbal cues. After the interviews were completed, audio recordings were played back, and transcribed by the researcher. This control of the audio playback ensured accurate transcriptions of the interviews. If there were questions regarding the participant's comments, the researcher contacted the participants and asked for clarification. At the end of the interview the researcher thanked the respondent for their participation.

Data Analysis

Univariate Analysis

Summary statistics were obtained to describe the demographics of the study sample and participant's perceptions (see Table 5.1-5.4). Specifically, frequencies and percentages were calculated using Stata 11.0. BMI was calculated using a BMI Calculator for Children and Teens (BlueCross BlueShield, 2013). The calculator provided an approximate BMI among the target population. In addition, it provided a description of the child's weight status.

Coding of Themes for Interviews

The process of the qualitative analysis included six steps (Creswell, 2009). The first step involved transcribing the interviews. Recorded interviews were played back and typed out by the researcher. For the second step, the researcher read the data line-by-line to ensure the transcript was credible. All of the transcripts were reviewed multiple times by the researcher. In the third step, the researcher began the coding process, writing codes in the margin of the paper, organizing the codes into categories in an excel spreadsheet using terms from the actual language of the participants, and counting frequency of the codes (Creswell, 2009; Miles & Huberman, 1994). The transcribed data were coded so that a theme was attached to a repeated concept (Creswell, 2009; Moustakas, 1994). In step four, the researcher used the codes to develop larger themes, which became the major headings in the results (see Table 3.2). This study used quotes, as evidence to the themes, to represent the findings. The fifth step involved connecting the codes, themes, and meanings from the qualitative data to the literature review. In the sixth step, interpretation of the data was conducted (Creswell, 2009). The transcription process was labor-intensive, typically involving 3- 5 hours for each interview.

Table 3.2

Final themes and concepts from the qualitative data

Themes	**Concepts**
Risk Factors	
	Income
	Physical activity
	Technology
	Lack of community support
	Healthy eating
	Lack of grocery stores
	Fast food restaurants
	Parents
	Cooking
	Lack of physical activity sites
Health complications	
	Asthma/Breathing
	Diabetes
	High blood pressure
	High cholesterol
	Arthritis
	Low self-esteem
	Depression
	Bullied by peers
Weight Status	
	Thick
	Chunky
	Chubby
	Overweight
	Obese
	Healthy
	Growth chart
	Big
	Obesity
	Solid
	Heavy
	Skinny
Built Environment	
	Safety
	Not enough resources or activities
	Grocery stores
	Fast food restaurants
	Expensive fees
Prevention	
	Parents/Family
	Schools
	Education
	Elected officials
	Health professionals
	Programs
	Encouraging healthy habits

Mixing of Data

The mixing of the data occurred by the merging of both data sets (see Figure 3.1). Mixing included comparing the separate results of the quantitative and qualitative data. In the final step, the researcher interpreted how the two sets of data related and contradicted each other (Creswell, 2009).

Addressing Ethical Issues

The researcher of this study is a Doctor of Public Health Candidate trained in qualitative and quantitative methods. At each phase of the study, the researcher respected the beneficence, justice, needs, and values of the participants. Ethical consideration for the study was in full compliance with the Georgia Southern University Institutional Review Board. Written consent was obtained from all participants. Participants were informed the interview would be recorded, but their identity remained strictly confidential, and their names were not shared with other participants or individuals outside the study.

The anonymity of individuals was protected by assigning participants identification numbers for the interview and survey. In addition, they were informed of their rights to refuse to answer any questions during the interview. Individuals who chose not to participate were respected for their choice and not penalized. Although the subject matter produced an emotional response from some of the participants; participants appeared to not have experienced any distress or require any psychological treatment. All data were kept on a password protected laptop computer. In addition the digital tape recorder, interview notes, list of participants, consent forms, and any hard copies of documents were safely secured in a locked file in the researcher's home, only accessible to her.

Chapter 4

RESULTS

This chapter summarizes the results of the study and details of the statistical output. Tables are employed to report data succinctly. The quantitative and qualitative findings were merged in this chapter reporting on the demographic characteristics of the participants and their children, participants' perceptions of childhood obesity risk factors, perceptions of their child's weight status, perceptions of barriers and facilitators in the built environment, and their perceptions and prioritizations of childhood obesity strategies in a rural community. The quantitative outcomes consist of descriptive statistics, whereas the qualitative results consist of narrative descriptions embodied in themes and quotes generated from the data.

Sample Characteristics of Survey Respondents

A total of 167 participants completed the survey. For the purpose of this analysis, participants who completed multiple surveys for a household (n=13), resided in a different county other than Burke (n= 7), reported a different race/ethnicity (n=4), did not complete the consent form (n=5), did not complete 90% of the survey (n=2), and did not attend the elementary school (n=1) were excluded. Thus, a total of 135 participants remained for analysis. A flowchart documenting the survey analysis is displayed in Figure 4.1.

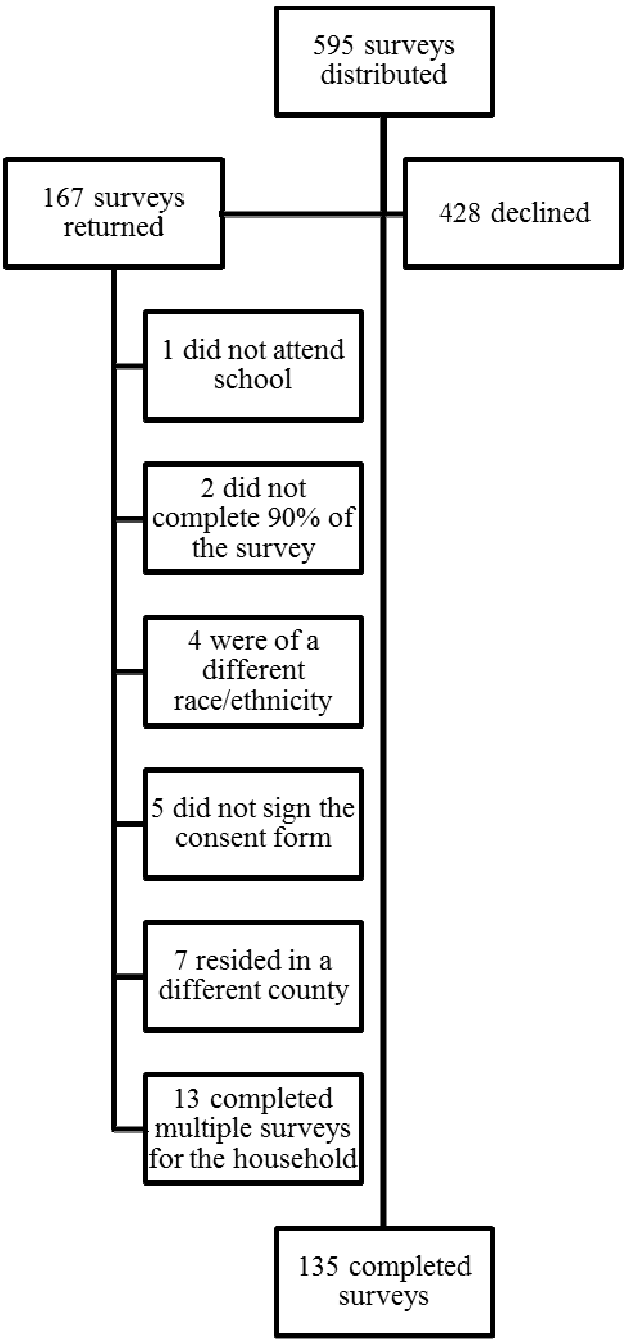

Figure 4.1 Flowchart of survey analysis.

As shown in Table 4.1, 96% of the respondents who completed the survey were female. All of the respondents self-identified as Black or African American and resided in the specific county. Sixty percent of respondents were between the ages of 26-35 years old (Mean= 34.46, Standard Deviation= 7.44). The minimum age of a respondent was twenty-two and the maximum age of a respondent was sixty-five. Due to distribution of the parent's age, the variable was collapsed into fewer categories resulting in 22-25, 26-35, 36-45, and 46-65. Approximately 58% of children resided in a one-parent household. Children who lived in a two-parent household comprised 42% of the sample.

For the children reported, 42% were male and 58% were female. The children ages ranged from 8 to 11 years old as presented in table 4.2. Respondents reported that nearly 32% of the children were considered a middle child. A majority of the respondents reported having three children under the age of 18 residing in their household (Mean= 2.74, Standard Deviation= 1.36). This variable was collapsed into fewer categories (i.e., 0-2, 3-5, and 6-8). In terms of child's weight status, respondents reported their child being 25-245 pounds (Mean= 88.46, Standard Deviation= 35.09).

Smaller proportions of respondents reported not having a college degree with 9% having less than high school; 9% having some high school, but did not graduate; and 30% a high school diploma or GED. Approximately 38% of the sample reported their highest education level was some college or an associate degree. Almost 8% of survey respondents reported completing college whereas 12% percent confirmed completing some graduate degree or fully completing a graduate degree. Respondents who indicated that they were employed, 65% reported full-time employment and 16% reported part-time. Approximately 19% of the sample was unemployed.

As part of the survey, respondents were asked to describe their yearly household income from all sources ranging from less than $10,000 to $74,000 or more. The distribution of the income variables were collapsed into smaller categories for analysis. Roughly 42% of the respondents reported an income below $19,000, 26% had an income greater than $19,001 and less than $39,000, 12% confirmed an income between $39,001- $59,000, and 3% claimed an income between $59,001- $74,000. Only 4% of the respondents reported household incomes above $74,001, 5% were not aware of their yearly household income, and 8% preferred not to respond to the question.

Table 4.1

Descriptive statistics of survey respondents

Variables		Frequency (n)	Percentage (%)	Missing
Age in years				
	22-25	8	5.93	
	26-35	78	57. 78	
	36-45	34	25.19	
	46-65	15	11.11	
Gender				1
	Female	129	96.27	
	Male	5	3.73	
Children per household				8
	0-2	57	44.88	
	3-5	64	50.39	
	6-8	6	4.72	
Education				13
	Less than high school	13	9.85	
	Some high school, but did not graduate	12	9.09	
	High school or GED	30	22.73	
	Some college or an associate degree	50	37.88	
	Some graduate degree or completed	17	12.88	
Employment status				29
	Unemployed	20	18.87	
	Part-time	17	16.04	

Table 4.1 Continued

	Full-time	69	65.09	
Annual Income				4
	Less than 19,000	55	41.98	
	19001- 39,000	34	25.95	
	39001- 59,000	16	12.21	
	59001- 74,000	4	3.05	
	74,001 or more	5	3.82	
	Don't know	6	4.58	
	Refused	11	8.40	
Total		**135**		

Table 4.2
Descriptive statistics of the children of survey respondents

Variables		Frequency (n)	Percentage (%)	Missing
Age in years				1
	Eight	43	32.09	
	Nine	37	27.61	
	Ten	44	32.84	
	Eleven	10	7.46	
Gender				1
	Female	78	58.21	
	Male	56	41.79	
Birth order				1
	Only	12	8.96	
	Youngest	39	29.10	
	Middle	43	32.09	
	Oldest	40	29.85	
Living status				3
	One-parent	76	57.78	
	Two-parent	56	42.42	
Total		**135**		

Sample Characteristics of Interview Participants

A total of twelve participants voluntarily consented to an interview. Eleven of the interview participants were female and one participant was male, ranging in age from 26-65 years old (see Table 4.3). During the interviews, participants indicated their children were between the ages of 8-10 years (see Table 4.4). Nine participants discussed a female child, whereas three reported on a male child. Most participants could not report the height of their

child; however, they could report the weight status. Children of interview participants were reported weighing between 58-96 pounds. Half of the participants stated their children lived in a two-parent household; the other half resided in a one-parent household. Majority of the participants had 3-5 children under the age of 18 years that resided in their household. Five participants indicated an income below $19,000, four participants had an income level between $19,001- $39,000, two participants had an income between $59,001- $74,000, and one participant had an income of $74,001 or more. Nearly half of the participants had some college education or degree. Five out of the seven parents who interviewed were employed full-time.

Table 4.3
Descriptive statistics of interview participants

Variables		Frequency (n)	Percentage (%)
Age in years			
	26-35	8	66.67
	36-45	3	25.00
	46-65	1	8.33
Gender			
	Female	11	91.66
	Male	1	8.33
Children per household			
	0-2	3	25.00
	3-5	9	75.00
Education			
	Less than high school	1	8.33
	Some high school, but did not graduate	1	8.33
	High school or GED	2	16.66
	Some college or an associate degree	5	41.66
	College degree	1	8.33
	Some graduate degree or completed	2	16.66
Employment status			
	Unemployed	5	41.66
	Part-time	2	16.66
	Full-time	5	41.66
Annual Income			
	Less than 19,000	5	41.66

Table 4.3 Continued

19,001 - 39,000	4	33.33
59,001- 74,000	2	16.66
74,001 or more	1	8.33
Total	**12**	

Table 4.4
Descriptive statistics of the interview participant's children

Variables		Frequency (n)	Percentage (%)
Age in years			
	Eight	4	33.33
	Nine	5	41.66
	Ten	3	25.00
Gender			
	Female	9	75.00
	Male	3	25.00
Birth order			
	Youngest	1	8.33
	Middle	5	41.66
	Oldest	6	50.00
Living status			
	One-parent	6	50.00
	Two-parent	6	50.00
Total		**12**	

Risk Factors

Survey results revealed respondents were likely to agree or strongly agree that parent's eating habits (51% agree; 29% strongly agree), exercising habits (48% agree; 37% strongly agree), and lifestyle habits (36% agree; 57% strongly agree) influences a child's susceptibility of obesity. However, 31% of survey respondents agreed parental obesity has an influence on a child becoming obese while 26% of survey respondents disagreed with this statement (see Appendix

I). Many participants believed that parents were the main risk factor of childhood obesity. A participant stated,

> "If they have parents that are not into fitness or not into eating right then they are not going to do it. I think the parent is your number one. It starts at home." or " I noticed that kids will pick up on a lot of stuff that they parents or grandparents do."

Regarding additional childhood obesity risk factors many respondents agreed or strongly agreed physical activity (37% agree; 43% strongly agree), food advertising (37% agree; 31% strongly agree), watching television and playing video games (36% agree; 23% strongly agree), and consuming high caloric foods (46% agree; 43% strongly agree) all contributed to obesity. One participant stated,

> "dietary consumption is majority of the problem."

The community had limited options for accessing healthy foods. Participants described the three stores found in their community and some stated they had access to fresh fruits and vegetables; yet, it is expensive. During interviews, participants commented on the convenience of fast-food restaurants which serve high caloric foods in the county.

> "Um one things for us it's hard. I know I got to do better as a mom, but it's like let me make sure our meals are healthy just so the way we eat cause we have so many you know like in today's time everyone has afterschool activities and stuff going on and we not going to get home till after 7:30. It's like we got to find something and we don't always make the best choices."

In addition, many participants described the county and their community as having insufficient resources for the children to be active. Also, interview participants had heard little about obesity in rural areas.

"Nothing, I haven't heard anything but my impression is that there are less physical activity places especially for children, and my impression not that I have heard that and my impression is that eating would not be as healthy, and your exercise options and all that would not be as much."

In regards to obesity in rural areas, another participant stated:

"Um not a lot honestly like when you read journals when you read articles it doesn't really focus on you know your rural areas you know in general childhood obesity is a problem and kids are being affected in earlier ages by diseases that we thought were olds people diseases."

Conversely, majority of the survey respondents circled disagree or neither that the lack of money (31% disagree; 21% neither), poorly kept housing (34% disagree; 26% neither), and close ties of a community are risk factors of childhood obesity (25% disagree; 31% neither). One interview participant who had an obese child stated community members are not helpful when addressing the obesity problem in the rural community.

"Like I said it's a lack of I think as far as like networking and from surrounding areas its okay but I don't think like people don't sit up there and take heed to it into it is actually in their home. So I feel as though if we can actually get more networking out to go into the homes."

Moreover, during the interviews many participants stated that a low socioeconomic household can contribute to obese children. Participants reported low income families cannot afford programs and activities for their children, stating,

"I notice there are a lot of people who try to do things to help the family that can afford a lot of stuff like if your son wants to play football at the rec you might have to pay $45 or $50 and that mother could have 3, 4, 5 boys and that would be a big hit in the pocket."

In addition, one participant suggested how to improve the health of children within the rural community by

" I just think if it could be starter earlier with those high risk lower income families as educating them. Them knowing what's what how to do. I think if it started early that that would be a big help."

Health Complications

Examining the survey results, respondents agreed that diabetes (56% agree; 21% strongly agree) was a result of obesity. Survey respondents noted asthma (35% agree; 28% neither) and bone joint problems (44% agree; 23% neither) as agreed or neither for health outcomes of obesity. Yet respondents selected neither or disagreed that if a child was obese, he/she is likely to develop cancer (45% neither; 33% disagree), be infertile (41% neither; 31% disagree), or experience irregular menstrual cycles (38% neither, 23% disagree). In addition, 25% of survey respondents strongly disagreed and 33% disagreed that their child's weight status was related to any health problems the children may have developed (see Appendix I). Majority of the interview participants stated that diabetes, hypertension, breathing problems, and high levels of cholesterol were all health outcomes of obesity. Participants used sentiments such as,

"heart attacks, high blood pressure you know cause all of that is going to lead to stroke and all that other stuff" or "high blood pressure, sugar [diabetes], and breathing problems."

Participants infrequently referenced social and emotional problems during interviews such as depression or being bullied by peers. Also throughout interviews, participants mentioned when their child was experiencing health issues they would present their child to the hospital in the next county, which was a 30 to 45 minute drive for them. In addition, the community residents discussed access to one health department that provides preventive health services.

Weight Status

While completing the survey, respondents were asked to choose which picture represented their child's weight status. Twenty-three percent reported an underweight child, 21% a healthy weight, 16% overweight, and 12% obese (see Table 4.5; Figure 4.2). Yet, when participants described obesity in interviews they stated visualization of big kids and not their own.

"I think like real big kids" or "big people like real, real big."

Table 4.5
My child looks most like

Weight status	**Frequency (n)**	**Percentages (%)**
1	12	10.08
2	19	15.97
3	28	23.53
4	25	21.01
5	20	16.81
6	10	8.40
7	5	4.20
Total	**119** (16 missing responses)	**100.00**

Note. See Figure 4.2 for weight status options

Figure 4.2 Survey (item 20), my child looks most like

Furthermore, 32% of the respondents in this study disagreed or strongly disagreed (20%) about being concerned about their child's weight. Nonetheless 45% of survey respondents strongly disagreed their child was obese when completing the survey, 42% disagreed their child was underweight, and 30% strongly disagreed that their child was overweight. Forty-one percent of respondents considered their child to be an appropriate weight for his/her age. In interviews participants referred to their child as thick, solid, heavy, skinny, and overweight constructing their child's weight status on a prior doctor visit or their child's appearance.

Participants would state "she's a healthy weight cause she's a solid girl." or "um he's chunky." or " I based my daughter's height and weight with other children her height and

weight as well as her activity level and her yearly physical when she goes in to see her doctor."

In addition, 51% of respondents believed they could influence their child's weight, and 47% believed they had the power to prevent their child from becoming obese. In most instances, survey respondents and interview participants cited their child's doctor discusses the weight status of their child and has explained their child's weight status by using a growth chart. Furthermore, 52% of survey respondents reported understanding the difference between obesity and overweight. When the researcher asked interview participants about recommendations for parents who could not assess their child's weight status they either could not provide a recommendation, did not believe this to be true, or stated parents were in denial.

"Um I find that hard to believe. They just in denial. There's no way you can look at your child and say and not think they are getting a little heavy. I think that it's just a matter of they say oh well they ain't going to worry about it. I don't think anybody. I don't think the media. I don't think the doctors or anybody can do anything to influence that cause even with my children I notice when my daughter is starting to put on a little bit more I conscious then of what she is eating and what she is doing."

Respondents reported their child's height and weight measurements on the survey. Sixty-eight respondents reported both their child's height and weight, 26 reported only their child's weight, and 41 did not report any measurements. After calculating BMI it was found that survey respondents reported more overweight children than underweight and healthy weight (see Table 4.6).

Table 4.6 Respondent's report of child's BMI

BMI status	Respondent's report
Underweight	8
Healthy weight	15
Overweight	45
Obese	0
Total	**68**

Built Environment

Multiple issues related to the built environment such as safety, lack of physical activity places, and health programs were frequently voiced or reported by interview participants and survey respondents. According to the survey results (see Appendix I), respondents agreed their child felt safe in their community (60%), and safe communities encourage physical activity among children (56%). In the interviews, participants reported that safety was contingent on where the child resided:

> "You know it depends on where the child is living. We have some neighborhoods that are better maintained than others" or "You know out here we live in the country and we don't have any problems with anybody and gangs and stuff like that but it's a few gangs in [name of the city] with young boys."

Countless participants responded that they allowed their children to play in front of the house when they were outside. However, a common barrier expressed by interviewees was the lack of venues and health programs in the community for their child to be active. As one participated commented,

> "they need to get more stuff, you know more activities for the kids in this

community." or " Um if they could just get a seed planted you know reach rural communities and I think our issues are different cause we don't have all of the resources that every other like you know if we go to [name of city] there are options everywhere you got the Y, all kind of gyms, and all kind of stuff. That's not the case for us like in rural communities. We kind of just left up to figure it out."

The county has three parks and one recreational facility. Seventy- seven survey respondents reported that parks and recreational facilities play a role in preventing childhood obesity. However, interview participants stated that illegal activity occurred at the parks and strangers are usually present. The recreational facility has seasonal activities. Thirty-four percent of survey respondents disagreed there were not enough areas in the community for their child to be active. Many interview participants commented on the limited number of activities provided the school and recreational facility, the expensive fees, and the activities not being targeted towards non-athletic children. Some participants stated their child participated in activities sponsored by churches.

"They have um activities at the church she is attending at [church's name]" mentioned by one participant.

However, these activities were only available to children who attended the church. Nevertheless survey respondents did believe some of the activities within their community motivated their child to participate in physical activity. Approximately 36% of respondents agreed that the lack of community programs increases the risk of childhood obesity, whereas 28% of respondents disagreed. Thirty-three percent of survey respondents disagreed there are health programs in the community that focus on obesity and 30% neither agreed or disagreed. Conversely, 31% of the

respondents agreed that their child having a playmate in the neighborhood could prevent obesity and 24% disagreed.

Prevention Strategies

Sixty-five percent of survey respondents agreed that the schools play a role in their child developing healthy behaviors; however, 47% of parents disagreed that the school can prevent childhood obesity more than they can. Throughout the interviews, the participants asserted the school provided a supportive environment. Numerous participants remarked on the new nutritional standards within the school such as the school cafeteria not offering fried chicken and ice cream and providing more vegetables and fruits to their children. Nevertheless, nine interview participants stated their children attended physical education classes only twice a week and emphasized a need for having more physical activity time in the school setting. One participant stated

"80% is on the parents and 20% is on the school."

Also, 52% of survey respondents disagreed that their community can prevent childhood obesity more than they could. All of the interview participants stated there was inadequate community involvement for their child to be active. Participants stated such things as

"…like I said there's like no involvement, community involvement. We have parks we got the recreational park, but it's not like a park, park. We I was small they haven't put anything now in it. It's just the same thing so it's just the same stuff like they not putting any money into the growth of the community."

In addition, 48% of survey respondents agreed their child's doctor had communicated obesity prevention strategies. Furthermore, 47% of respondents agreed they had sufficient income to help prevent their child from becoming obese. Yet during interviews, many participants

discussed the need for programs to target low income families because they do not have the resources to sustain a healthy lifestyle.

Additional strategies survey respondents agreed to included encouraging their child to drink water instead of sugary drinks (52%), providing education about healthy behaviors (62%), and providing low fat-meals to prevent obesity (53%). Sentiments expressed by interview participants included,

> " I buy a lot of fruits and stuff and vegetables and everything for the house too. So that's what I try to do for her. She loves she likes she eats vegetables a lot." or

" It's high. It's expensive and I know because I be trying to feed them healthy but I was like okay I'm just have to get this vegetable oil and let's go."

Also, most survey respondents circled the extremely important or moderately important response for prevention strategies to prevent childhood obesity such as limiting screen time (42% extremely important; 27% moderately important), having their child participate in an after-school program (33% extremely important; 29% moderately important), portion sizes of meals (48% extremely important; 31% moderately important), speaking with a health professional about their child's weight status (37% extremely important; 30% moderately important), providing healthy snacks (62% extremely important; 28% moderately important), exercising with their child (61% extremely important; 29% moderately important), reading nutritional labels (45% extremely important; 33% moderately important), limiting energy-dense food (56% extremely important; 31% moderately important), and facilitating discussions with community members and leaders in regards to more programs for children (35% extremely important; 28% moderately important). Throughout the interviews, most participants asserted that parents played a vital role in preventing childhood obesity. Participants stated,

"The most important to me would be the parents. The parents if they play their part everything else would pretty much fall in place." or "…for a child their parents is going to motivate them; the parents are going to be the best form of example as far as physical fitness, well-being, and healthy lifestyle."

Chapter 5

SUMMARY, DISCUSSION, AND CONCLUSIONS

The intent of this study was to report on the perceptions of childhood obesity among African Americans in a rural community. This was investigated by examining perceptions of childhood obesity risk factors and health complications of obesity, weight status, barriers and facilitators in their child's built environment, and prioritization of childhood obesity strategies in a rural community. This chapter includes: 1) a summary of the study; 2) discussion of findings; 3) strengths and limitations; 4) lessons learned; 5) public health implications; 6) recommendations; 7) future research; and 8) conclusions.

Summary of the Study

Childhood obesity is a multi-dimensional problem resulting in unhealthy lifestyles among millions of young children specifically minority children (CDC, 2012b; Ogden et al., 2012b.). Parents play a vital role in the prevention of childhood obesity. This concurrent mixed methods study intended to conduct formative research on parent's perceptions of childhood obesity for future studies providing insight on current practices and beliefs of African American parents in a rural community. Two main questions and three sub-questions were examined and answered. The interviews provided a candid, personal perspective of participants whereas surveys provided a numeric description of respondent's opinions.

Four components were examined: participant's perceptions of risk factors and health complications, weight status, the elements of the built environment, and the importance of prevention strategies. Participants believed that behavioral risk factors and parents contribute to childhood obesity. Yet dilapidated houses, lack of money, and social cohesion of the community were not viewed by survey respondents to be factors of childhood obesity. However, interview

participants believed that lack of community programs in their rural community and low socioeconomic status are factors of childhood obesity. In addition, participants frequently cited asthma, diabetes, breathing problems, and hypertension as health problems associated with obesity in interviews and on the surveys. However, many survey respondents did not agree that cancer, infertility, or irregular menstrual cycles were health outcomes of obesity. No interview participant discussed these three adverse effects.

Regarding weight status, 45% of respondents disagreed their child was obese, 42% disagreed their child was underweight, and 30% disagreed their child was overweight. Participants stated they were cognizant of their child's weight because the child's doctor discusses their weight status using growth charts. Physical activity facilities, safety, and lack of health programs were commonly cited barriers of the built environment. Furthermore participants asserted that parents are the major influence in preventing childhood obesity because they influence a child's weight status more than their child's school, community, and peers. Survey and interview participants believed limiting sedentary behaviors, speaking with health professionals and community members, and role modeling healthy habits are extremely important prevention strategies. These findings demonstrate employing a multilevel approach that creates programs and supportive environments to address the perceptions of the participants may be the most promising solution for this problem in a rural community. Nevertheless, more research is needed before implementing programs and interventions.

Discussion

Risk Factors

According to the survey results and interview responses, participants appeared to be well informed on the behavioral habits, parental influence, family obesity, and the environment as risk

factors of childhood obesity. The study findings suggests that participants had a basic understanding of a healthy lifestyle, at least with respect to the importance of avoiding energy-dense foods, increasing physical education requirements in the school setting, and obtaining more recreational facilities in their community. This finding is of importance to the childhood obesity problem because it reveals participants have accurate perceptions of childhood obesity risk factors; therefore, public health professionals should assess current behaviors and implement a tailored plan for African Americans residing in rural communities.

Studies have shown minorities tend to reside in obesogenic communities (Kwate et al., 2009) with limited access to healthy foods and recreational parks and facilities (Alexander et al., 2013; Larson, Story, & Nelson, 2009). Additional studies suggest residing in a rural area and lack of access to healthy foods increases the prevalence of obese children (Morton & Blanchard, 2007; Schetzina, Dalton, Lowe, Azzazy, Von Werssowetz, Givens, Pfortmiller, & Stern, 2009). Therefore, African Americans residing in rural areas are more likely to encounter these aforementioned risk factors. These risk factors at the intrapersonal, interpersonal, and contextual levels contribute to childhood obesity.

Lack of money was not seen as a risk factor among respondents. However, interview participants contradicted the survey results by stating a child from a low income background would likely become obese because his/her parent could not afford activity fees or buy healthier foods. Therefore, survey respondent's and interview participant's responses contradicted each other. This may have occurred because the survey question was poorly written; therefore, the survey respondents did not understand the question or the survey respondents did not believe income was a factor in childhood obesity. Despite the results, children in low-income families are disproportionately at risk of childhood obesity and are not usually presented with the

opportunity to participate in childhood obesity programs (Baruch, Fonagy, & Robins, 2007; Singh, Kogan, & Van Dyck, 2008) due to their environment.

In this study social cohesion was designated as a risk factor rather than a protective factor. Social cohesion was defined as the connectedness among community members in the County to collectively work together to reduce childhood obesity. Therefore in the study instruments, social cohesion was referred to as close ties of community members, neighbors depending on each other, and children playing with other children to encourage physical activity. Franzini et al. (2009) reported that neighborhood social factors such as contact among children and neighborhood safety were positively associated with some measures of physical activity. Similarly, Duke and colleagues (2012) found that neighborhood context such as social capital and mutual trust influences the engagement of participating in organized activities. While high social cohesion can have a negative impact on perpetuating unhealthy behaviors (Chartrand & Bargh, 1999) highly cohesive communities may influence coordinated action among community members (Putnam, 1995). Consequently, neighborhood social factors should be taken into consideration when implementing programs and interventions for rural communities.

According to survey results, parents neither agreed nor disagreed that lack of social cohesion contributes to childhood obesity. Yet, some interview participants stressed being unaware of the childhood obesity problem because their child was not obese. If the interview participant had an overweight child he or she commented on how the community including elected officials and neighbors were not focused on the childhood obesity problem because it did not affect them. This was an unexpected finding because most rural areas have dense social networks and ties (Crosby, Wendel, Vanderpool, Casey, & Mills 2012); however, it was apparent that during interviews social support for obesity was nonexistent. Without the support of neighbors and

elected officials, the collective efficacy of a community is diminished and elements such as recreational resources are not accessible to children (Burdette, Wadden, & Whitaker, 2006; Franzini et al., 2009). The survey and interview data may rebut each other because the survey question may have been poorly worded. Nonetheless, future studies should assess multiple dimensions of the social environment and structural characteristics of communities.

Survey respondents disagreed that poorly kept housing increases the risk of childhood obesity. Interview participants stated the lack of community programs and facilities increases the risk of childhood obesity not the appearance of the neighborhood. This finding demonstrates that interview participants may not believe that neighborhood conditions increase the risk of childhood obesity. It is important to conduct further analysis of their perceptions regarding the appearance of a community because this risk factor is modifiable through the enactment of environmental and social policies. Therefore, the health benefits of these improvements within the community can expand beyond the scope of childhood obesity prevention efforts.

Health Complications

Survey respondents were well-informed on the pulmonary, endocrine, cardiovascular, and psychological effects of childhood obesity. During interviews, participants commonly stated diabetes, breathing problems, and hypertension as health issues of childhood obesity. Only a few participants remarked on depression as a health effect of childhood obesity. Nevertheless survey respondents and interview participants were not aware of the effects of obesity on the reproductive system and the correlation of obesity and cancer. Interview participants who commented on health effects of the reproductive system worked in the healthcare field. Yet this study demonstrated that participants were aware of the health risks an obese child might develop. Interview participants commented on obese family members and friends who were diagnosed

with diabetes, asthma, and cardiovascular diseases in the rural community. This finding rebutted prior studies concluding that parents fail to recognize their child is at an increased risk for physical and mental health problems caused by obesity and overweight (Cottrell, Minor, Murphy, Ward, Elliott, Tillis, Turner, & Neal, 2007; Warschburger & Kroller, 2009; Young-Hyman et al., 2000).

Weight Status

Throughout the study, weight status was assessed multiple times including participants self-reporting their child's height and weight measurements and using a visual aid to identify the weight status of their child. Little agreement existed between the different methods employed to assess weight status. Accurate and inaccurate perceptions of weight status has been examined in multiple populations as it relates to race/ethnicity and culture (Intagliata, Ip, Gesell, & Barkin, 2008; Skelton, Busey, & Havens, 2006). In addition, demographic factors such as educational status, socioeconomic status, and age of the child are associated with parental perceptions of weight status (Cochran, Neal, Cottrell, & Ice, 2012). The study findings were consistent with the previous body of literature revealing a disconnect between parental perception and their child's weight status. However, study participants reported and discussed the perceptions of their child's weight status was influenced by a prior doctor visit (where the doctor used a growth chart and assessed the child's weight) and by the study participant visually examining their child.

Prior research has asserted that minorities' perceptions of obesity vary because they have an inaccurate clinical definition of obesity due to a lack of communication with healthcare providers during early childhood (Goodell et al., 2008; Hernandez, Cheng, & Serwint, 2010). Yet, survey respondents reported understanding the difference between overweight and obesity. Furthermore, participants believed they could influence their child's weight status through diet

and physical activity habits. Increasing parent's self-efficacy could potentially reduce a child's weight status. Davison et al. (2013) confirmed that parents who are engaged in a childhood obesity intervention had significantly greater self-efficacy to promote healthy eating and increase support of physical activity for their children.

Likewise Sekhobo, Egglefield, Edmunds, and Shackman (2012) study reported exposing low-income parents to knowledge promotion activities enhanced their confidence to engage in healthy lifestyle behaviors with their children. This study did not report on the geographic location or race/ethnicity of the study sample. In this current study, interview participants of overweight children reported engaging in more weight loss programs referred by their doctors than participants of healthy weight children. Many of these parents were taking appropriate action to prevent their child from becoming obese. The findings of the study was consistent with previous research indicating that overweight status of children is strongly associated with weight loss behaviors (Chung, Perrin, & Skinner, 2013). Although obese children partake in weight loss behaviors it is pivotal that research continues among this population because having an unhealthy weight status and residing in a rural area increases the risk for medical conditions and health risk behaviors.

The Healthy Dads Healthy Kids 3-month randomized controlled trial resulted in significant weight loss and improved lifestyle changes among children and fathers who attended eight education sessions (Morgan, Lubans, Callister, Okely, Burrows, Fletcher, & Collins, 2011). This study revealed targeting parents is an efficacious approach for improving health behaviors in children. Interventions that involved parents were considered effective if parents were responsible for participation and implementation, identified barriers, restructured the home

environment, and learned self-monitoring and goal setting techniques (Golley, Hendrie, Slater, & Corsini, 2011).

Built Environment

Rural parents encounter built environment challenges when attempting to model healthy behaviors for their children. Many interview participants commented on the lack of physical activity venues and programs found within their community. For example, major grocery chains, exercise facilities specifically the Young Men's Christian Association (YMCA), and hospitals were a great distant from their homes. Moreover, perceived crime was stated as a barrier of the build environment. Parental concerns regarding safety of the recreational parks influenced their child's physical activity levels in this county.

Similarly, the lack of infrastructure and physical activity facilities in rural areas has been associated with low level of physical activity and unhealthy weight status (Gordon-Larsen et al., 2006). Literature suggests that walkable communities are associated with a lower rate of obesity. For example, Davidson and colleagues (2010) reported parental perceptions of neighborhood characteristics such as sidewalks influences self-efficacy and body weight of a child. An additional study found that children's weight status is reduced in environments where sidewalks or trails are present and in good condition (Evenson, Scott, Cohen, & Voorhees, 2007). Additional research has substantiated the association between the built environment and obesity (Alexander et al., 2013; Malley, Warren, & Devine, 2010).

Since rural areas have higher rates of mortality and chronic disease (Elizondo & Morgan, 2012) it is vital that residents in rural settings obtain access to physical activity venues, healthy foods, and exposure to the natural environment. Also improvements in communication between community members and organizations can alleviate rural isolation and lack of knowledge of

surrounding health programs. Obesity interventions and programs should consider these factors before development and implementation.

Conducting this study in an urban setting may have produced different results regarding the identification of barriers of the home and community environment. Urban participants may have identified behavioral, genetics, environment, and parents as risk factors of childhood obesity. Interview participants commented on the access to fresh produce either maintaining a garden or buying vegetables from a neighbor or grocery store. Yet a lack of space to grow a garden would be a barrier for urban families; thereby, causing these families to consume more meats. In addition, social networks among urban communities are not dense as they are in rural environments. Socioeconomic status plays a central role in segregating urban environments reducing social cohesion. Also, families residing in urban areas have more preventive care resources and public transportation compared to their rural counterparts. Therefore, interventions for rural areas would need to account for rural isolation (i.e., lack of resources) while urban interventions would need to consider the lack of social cohesion among communities.

Prevention Strategies

Overall, respondents and participants stated parents were vital for addressing childhood obesity and are more influential than the school and community setting. Participants agreed that parents influence their child's lifestyle habits; therefore, it is important for parents to have access to healthy foods and recreational venues. This finding reinforced studies that childhood obesity efforts should target parents and work with children at the earliest stages of child development to encourage healthy practices (Golan & Crow, 2004; Lindsey et al., 2006). Interview participants stated employing preventive strategies for obesity such as ensuring their child consume more fruits and vegetables, speaking with their child's doctor, and enrolling their child into

recreational activities or exercising with their child would be effective in reducing their risk for obesity. This finding demonstrated that participant's behavioral capability, role modeling, and self-regulation can play a vital part in future childhood obesity programs and interventions. With relatively few studies and interventions in the literature focused on African Americans residing in rural areas more research is warranted to draw conclusions on behavioral constructs that are associated with childhood obesity.

Lynch and colleagues (2012) 4-Health intervention employed the aforementioned concepts from the Social Cognitive Theory and reported improving parent's ability to effectively increase healthy lifestyles reducing obesity risk factors among their children. However, parents must be given the appropriate tools and resources to not only create an environment for their child to develop and engage in healthy behaviors, but for interventions and programs to integrate parent's lifestyle including socioeconomic status. Survey respondents were well aware of prevention strategies to employ; however, making healthy lifestyle choices and seeking preventive care revolved around their contextual environment and daily routines. In addition, while completing the survey or being interviewed study participants may have been unintentionally triggered to improve their child's obesity-related behaviors.

Strengths and Limitations

Numerous strengths were found in this study. First, collecting two types of data simultaneously allowed the researcher to understand the complexity of rural factors associated with childhood obesity. By mixing the qualitative and quantitative data the researcher checked the validity, explored discrepancies, and revealed an exhaustive view of the participant's lives. Second, employing the Social Ecological Model and Social Cognitive Theory provided theoretical frameworks for the current study. The concepts of both theories assisted in framing

the research questions and instruments. Third, the researcher participated in Parent Coordinator events to build trust among the school staff. Throughout the interviews the researcher learned the participants had a very positive relationship with the school. Fourth, this study contributes to the growing literature on childhood obesity in rural areas. Fifth, sharing results with the participants and School Board creates community dialogue, reveals assets in the community, and possibly creates future action. Finally, this study could be expanded as groundwork for future studies and interventions in rural communities.

Despite the multiple strengths, limitations were found. First, the study population consisted of a convenience sample of participants leading to a selection bias. The study was only limited to one school; therefore, this was not a representative sample of rural African American parents in the nation or rural settings. Second, self-report bias occurred due to participant's perceptions and reporting measurements of their child. If participants of a healthy weight child were physically active and aware of community resources they may have provided more accurate assessments of perceptions compared to participants who did not have a healthy lifestyle and had an overweight or obese child. Third, throughout the research the researcher clearly indicated the desire to have a parent complete the survey; however, the survey did not ask specifically about a parental relationship to the elementary school child. Hence, the survey may have been completed by other family members such as a grandmother or aunt residing in the household. Fourth, the survey was distributed in envelopes by teachers; therefore, the researcher did not have direct contact with the respondents except if they attended a Parent Coordinator meeting. This led to teachers randomly selecting students resulting in a threat to internal validity of the study and possibly contributing to the low response rate of the follow-up surveys. Additional reasons of a low response rate included a lack of incentive for participation, a lack of distrust of the

researcher, no reminder letters regarding the survey were issued to the participants, childhood obesity was not a priority issue for this sample, or the survey was time-consuming. However, the elementary school staff reminded the participants of the due dates for the surveys. Fifth, the survey item which attempted to address social cohesion was poorly worded resulting in respondents and participants contradicting each other. Sixth, further assessing the reliability information of the survey should be conducted. Future studies should assess the psychometrics of the survey by conducting a confirmatory factor analysis and an internal consistency assessment involving Cronbach's alpha.

Lessons Learned

While conducting this study, the researcher learned multiple lessons to take into consideration for future studies. First, the researcher should have performed a windshield assessment to assess general community needs. The researcher relied heavily on public health data and prior experience of working with this specific school. Yet a windshield tour would have provided an objective view of the community and allowed direct comparisons between multiple neighborhoods. Second, before entering a school setting it is important to not only receive and apply feedback from the School Board and Administration staff, but to receive feedback from the teachers of the school. The teachers have a more intimate relationship with the parents. This may have possibly ensured recruitment efforts were successful and gained trust among participants. Initially the researcher intended to randomly select participants who attended Parent Coordinator meetings; however, the attendance rates at the meeting were low and school personnel believed participants would not return completed surveys. Therefore, the researcher had to modify the original research plan, and use a convenience sample.

Recruitment was one of the most challenging aspects of the study because the researcher attempted to overcome past negative experiences with prior Georgia Southern University researchers, understand the culture and routine of the selected school and personnel, be perceptive of the multiple demands placed on the school personnel, and tailor recruitment strategies to the school setting. In addition, the researcher attempted to distribute the surveys the first week of school. However, the researcher had not received approval of the study; thereby, delaying the distribution of the survey until the second week of school. Although the researcher encountered various challenges, strategies were employed to enhance recruitment. The researcher maintained regular presence at the school throughout the study (i.e., 2-3 times a week). Moreover, the researcher attempted to minimize demands the current study placed on the school personnel by attending Parent Coordinator meetings and open house, sending invitational letters to the potential participants, and employing professional integrity which included respecting school personnel and participants. Also, the researcher distributed instructions and tracking logs to the school personnel to ensure the study was presented clearly to the potential participants because presentation of the study could possibly influence participation.

Third, the researcher should have conducted a needs assessment survey with community members including parents and teachers at the elementary school. The results of this survey could have guided the study and revealed to the researcher the prioritization of the childhood obesity problem. Likewise, this could have created a meaningful relationship among the researcher and community members and helped the researcher assess what childhood obesity efforts have been implemented and conducted previously within the County. Fourth, the researcher should have facilitated an assets map workshop with the elementary school students, parents, and staff to have an exhaustive understanding of what community members view as

strengths in their community. Fifth, the researcher should have sought more funding to cover study costs such as human resources and incentives for participants. Sixth, the researcher should have employed the two additional elementary schools in the County. This would have built a larger network of community partners to ensure success of the study while alleviating stress from the elementary school staff members. If the additional elementary schools were employed in this study focus groups comprised of parents could have been conducted to obtain an idea of childhood obesity perceptions. From these focus groups results, the researcher could have drafted a survey and allowed the parents to comment on the survey this would have provided initial testing of content validity as well. Finally, the researcher should have conducted an additional pilot test among 30-50 individuals on the survey after content experts reviewed the final instrument.

Implications

Children residing in rural areas encounter challenges such as lack of access and availability to healthy foods while their parent's perceptions of obesity influence their health behaviors. Parents are in a position to impact obesity risk factors, their child's weight status, utilize the built environment facilitators, and implement obesity prevention tactics. Thus, public health interventions and programs should be designed to assist parents in creating and sustaining healthy lifestyles in rural communities. The parents in this study were well informed on the areas of obesity examined; therefore, parents must extend their influence into the community setting.

Effective interventions would utilize community assets such as the recreational center, health department, school, and faith-based organizations identified by the community members to increase parental involvement in childhood obesity efforts while providing resources to alleviate the stress of engaging in new health behaviors. Also, identifying community based

organizations and faith based organizations that would be willing to sponsor programs to educate and monitor parent's behaviors can potentially promote behavioral capability, role modeling, and self-efficacy in the parent. In addition, establishing support groups for families of unhealthy weight children would be helpful. Much emphasis is placed on early intervention obesity efforts; yet, some rural children may have missed this opportunity. Therefore, conducting programs and longitudinal studies and evaluating these efforts would assist in assessing the impact of the programs and identify challenges for future programs in rural areas. Furthermore, assessing the target population's perceptions prior to conducting an obesity prevention program is imperative to understand their readiness for change. Finally, examining the differences and similarities between urban and rural parents would allow public health professionals and policy makers to integrate the challenges of both environments in future obesity efforts and create sustainable programs for parents; thereby, creating a healthier generation.

Recommendations

The results of this study can be used to develop multiple recommendations for childhood obesity interventions and programs for rural communities. Recommendations in this section are classified into health education, environmental change, social support, health services, and community mobilization strategies (McKenzie, Neiger, & Thackeray, 2009).

Health Education

Health education should be provided to the African American parents and children in rural communities to gain in-depth knowledge about lifestyle changes specifically physical activity. Incorporating physical activity into a lifestyle is often a difficult task to overcome, which is why it is important to engage community members. A step-by-step plan that should be used to engage the community in incorporating more physical activity in their daily routine

includes: 1) recognizing the issue; 2) gaining entry into the community; 3) organizing the community members; 4) assessing the community; 5) prioritizing and setting goals and objectives; 6) presenting solutions and selecting intervention strategies; 7) implementing the action plan; 8) evaluating the outcomes of the action plan; 9) sustaining the outcomes in the community; and 10) returning back to a previous step (McKenzie, Neiger, & Thackeray, 2009). Several study participants reported or discussed the lack of physical activity programs within the rural community. Therefore, this is recognized as an issue for this community. Conducting the current study aided in establishing trust among some community members and learning the norms and values of the community. To ensure success of a physical activity intervention it is imperative for elected officials, community leaders, parents, and recreational facilities to collaborate.

Gatekeepers who are knowledgeable about the community and have a positive reputation with the community would need to participate throughout the intervention (Duran, Wallerstein, Avila, Belone, Minkler, & Foley, 2013). A core group should be established comprised of individuals who are interested in addressing the lack of physical activity occurring among children in the rural community. These community members should be affected by the problem and want to see a change within the community (McKenzie, Neiger, & Thackeray, 2009). Conducting windshield tours to identify community resources that could help promote physical activity would occur. A leader should be appointed for the core group. To ensure success the core group and leader must have a high level of commitment (McKenzie, Neiger, & Thackeray, 2009).

A coalition with diverse membership would be formed to help design an effective physical activity intervention. The coalition members should be comprised of individuals from

organizations and community groups who are interviewed by the core group. Interview questions should include: 1) motivational factors; 2) prior experience working with coalitions; and 3) personal attributes (Bryant, Courtney, McDermott, Alfonso, Baldwin, Nickelson, Brown, Debate, Phillips, Thompson, & Zhu, 2010). The coalition should find resources to help address the physical activity problem in this rural community.

The members of the coalition should identify health educators that would promote actions that allowed children to meet recommended physical activity requirements. Public health professionals from the Jiann-Ping Hsu College of Public Health could potentially train the health educators. The health educators could be high school students who could help develop culturally appropriate messages regarding physical activity. Also, health educators could provide support to community members who are adapting their lifestyles through counseling and motivational interviewing (Martins & McNeil, 2009). A health curriculum including nutrition, physical activity, weight related assessments, use of pedometers, and creating health action plans would be developed and taught by the health educators. Parents providing feedback on the health curriculum would be helpful to the public health professionals; thereby, ensuring the parents were involved in the design of the intervention. The community members would then identify priorities and establish goals and objectives.

After the goals are established, the community members should identify other avenues to increase physical activity using the consensus process. An action plan regarding the intervention should be proposed and approved at a coalition meeting. Implementing the intervention would involve identifying and collecting appropriate resources (McKenzie, Neiger, & Thackeray, 2009). Theoretical frameworks should be utilized to guide the development of the research questions and instruments. A mixed methods approach should be used to examine factors

impacting parents and children physical activity habits on multiple levels in the rural community. A sequential design including collecting qualitative data then quantitative data should be employed to establish rigor. Assessing weight status of children should be recorded using anthropometric measurements in this physical activity intervention. Thus, this physical activity intervention should increase children's physical activity levels and eliminate costly organized sports fees. In addition, parents and children should receive culturally sensitive materials throughout the intervention. Intervention activities and meetings should be monitored to ensure consistency.

Parents and public health professionals should conduct a process evaluation to reveal intervention revisions, which will empower community members and aid in capacity building. The process evaluation should be conducted in three steps: 1) establish evaluation objectives and design evaluation plan; 2) design data collection instruments; and 3) implement and report on evaluation activities (Siegel & Lotenberg, 2007). An evaluation report should be compiled detailing the effectiveness and recommendations of the intervention. The evaluation findings should stimulate action and policy implications within the rural community.

To sustain the program, the health educators should train other community members to become health educators; thereby, creating a knowledge transfer system. In addition, sharing information about the intervention through various communication channels (e.g., local newspapers, radio stations, and social media) may promote sustainability. Also, the coalition members interacting and partnering with surrounding rural communities to assist in increasing physical activity habits would be beneficial. In the final step, community members should return to a previous step in the intervention process to modify the proposed action plan (McKenzie, Neiger, & Thackeray, 2009).

Environmental Change

By creating and perpetuating collective efficacy among the parents this may in turn empower the community members to reclaim recreational parks in their community. Improving and providing safe parks throughout the community would be beneficial to families' specifically non-athletic children or children who cannot afford current recreational programs in the community. Parents, law enforcement, and elected officials should collaborate to form an advisory council for the three parks located in the community. In addition, parents should form neighborhood watch groups and inform law enforcement of illegal activities within the park. Also, law enforcement could possibly conduct workshops with children and parents regarding safety tips at the park. It may be beneficial if parents established rules for their children and attempted to establish a plan that would allow parents to rotate shifts to supervise children at the park.

Social Support

The lack of social cohesion among community members appeared to be an issue for interview participants. Therefore, parents should establish support groups for parents who have overweight or obese children. Interview participants discussed that there were no weight loss programs available in their rural community, and how they felt alone because of their obese child. Support groups can decrease the sense of isolation and stigmatization of obesity. In addition, being a part of a support group may allow the parent and child to reconnect with community members. The school or the county library would be an ideal setting for support groups to meet. Parents would need to come to a consensus on 2-3 facilitators for the support groups. These facilitators should establish guidelines, maintain confidentiality, and understand how vital it is to create a safe space where emotions are expressed.

Health Services

Some interview participants were healthcare providers in the rural County. This particular county is designated as a Health Professional Shortage Area; therefore, many residents of this county are more susceptible to health disparities because of the insufficient amount of health care professionals. To address the obesity-associated diseases healthcare providers could potentially partner with grocery stores, the health department, and school setting to provide health screenings for children and parents. These health screenings could include diabetes, hypertension, and hyperlipidemia. It would be beneficial to identify influential community members who would endorse this effort and participate in these screenings. In addition, this county should seek to gain access to Telemedicine equipment. This may alleviate the stress of community members engaging in preventative behaviors, reduction of health expenses, and transportation issues.

Community Mobilization

Community Building

Implementing a community-based participatory research (CBPR) intervention in the school setting would be recommended. Engagement of parents, community leaders, and public health practitioners would be needed to lead the development, implementation, and evaluation of a family-based intervention. This intervention should adhere to all nine CBPR principles. The CBPR principles include: 1) recognizing the community as a unit of identity; 2) building on the assets within the community; 3) facilitating collaborative partnerships in all phases of the research process; 4) promoting a co-learning and empowering environment among community partners; 5) establishing a relationship between research and action; 6) addressing health problems using ecological perspectives; 7) involving a cyclical and iterative process; 8)

disseminating findings among community partners; and 9) assisting in ensuring sustainability (Israel, Schulz, Parker, Becker, Allen, & Guzman, 2008). The community partners and school setting should reach a consensus on defining the community and community characteristics (Palermo, McGranaghan, & Travers, 2006). The intervention should create collective efficacy by building on the strengths and resources of the community.

The school setting and community partners should partner with surrounding universities including Georgia Southern University to design and implement a three-year intervention that includes parents and children to modify health risk behaviors. Throughout the interviews, the researcher learned the school setting had prior relationships in the rural community. A project manager should be appointed to oversee the intervention. Preferably one who has experience in conducting public health interventions and is cognizant of this particular community's needs. The project manager should established relationships with community partners; thereby, utilizing existing community assets. Graduate students from the Jiann-Ping Hsu College of Public Health could assist in conducting a mixed-methods community assessment to collect information on prioritized community needs by developing a community profile using local data (McKenzie, Neiger, & Thackeray, 2009). The project manager should recruit compassionate and skillful parents who would help increase the adoption of healthy behaviors.

The project manager should develop curriculum and train the parents before engaging in CBPR. Conducting monthly meetings and sending monthly reports to all partners would inform every one of the decisions and action steps that would be integrated at each level. An empowering environment can be promoted through open dialogue and shared decision making. In addition, the intervention should be adapted to the needs of the participants while maintaining the integrity of the research. A concurrent mixed methods approach employing the Social

Ecological Model and Social Cognitive Theory should be utilized in this intervention. Surveys, Photovoice, and research diaries should be employed for the data collection methods. The survey could potentially generalize results to African Americans in rural communities whereas the Photovoice method would provide insightful perspectives of participant's view of the community's strengths and barriers. The research diaries would help document participant's activities and thoughts. All methods would reveal a comprehensive analysis of behaviors. After receiving all data, the project manager and graduate students would analyze and interpret the data, and then train the parents to conduct a participatory evaluation of the intervention. Allowing the parents to conduct the evaluation would empower community members and assist in establishing systems-level change for future interventions. Intervention findings should be disseminated to partners and community members through accessible communication outlets including scholarly articles, brief reports, and presentations to Georgia policymakers.

Community Advocacy

African American parents should become community advocates by being more involved in the decisions that will impact the lives of their children and communities. Although a low percentage of participants agreed that speaking with community leaders could assist in reducing childhood obesity rates it would be advantageous for participants to voice their concerns. Creating a community coalition would increase communication among community members and leaders while influencing the policies within the local community (McKenzie, Neiger, & Thackeray, 2009). Establishing a community coalition may create more power for parents, exert more influence on the resources in the rural community, and improve existing relationships.

Community members should establish relationships with elected officials by identifying which elected officials are assisting in reducing the childhood obesity rates in their county.

Writing letters to the elected officials who are invested in the childhood obesity issue then scheduling appointments to meet with elected officials would be beneficial. The parent should be prepared to discuss the issue with an elected official and find out what capacity their county can address the childhood obesity issue. Asking such questions to assess the policymakers readiness to address the issue would include: 1) how are policymakers reducing and preventing childhood obesity; 2) how are current needs for childhood obesity prevention being met; 3) what are some activities that promote physical activity in this county; 4) what are some activities that promote healthy eating in this county; 5) what external resources are parents with obese children aware of; 6) which leaders of the community are supportive of childhood obesity prevention efforts; and 7) what aspects of the community make it difficult to implement a childhood obesity program? In addition, parents should develop and maintain a relationship with the media (McKenzie, Neiger, & Thackeray, 2009) to ensure circulation of their collective efforts.

Future Research

Obesity is an epidemic and will continue to be one of the most challenging issues that we face in public health until action is taken to educate the public about early detection, prevention, and health complications. Current research indicates that obesity rates are stabilizing and prevention of early childhood obesity is necessary. Yet more research is needed on children who have missed the opportunity for early childhood obesity efforts. For future research purposes, measuring the psychometrics of the survey instrument would be the most important next step for future studies. Conducting confirmatory factor analysis and an internal consistency reliability assessment (e.g., Cronbach's alpha) would assist in creating a valid and reliable survey instrument for this target population. A comprehensive review of the literature did not identify a reliable and valid survey instrument that assessed African American parent's perceptions of

preventing childhood obesity. Therefore, ensuring the survey that was employed in this study is reliable and valid could possibly assist future researchers in rural areas.

Conducting a comparison among African American families' lifestyles in multiple rural areas would be an additional future research study. This would include objectively measuring the lifestyle habits conducted at home and community environment factors to gain a better insight on the determinants that influence childhood obesity. Also, ensuring future childhood obesity studies observed low socioeconomic status families lifestyles in rural areas as well. Likewise, the children residing in these households should be involved in research efforts because they may provide a different perspective and less bias response on childhood obesity. In addition, a comparison on the physical activity and eating habits of children in the school and home environment of rural areas could possibly guide future research designs and interventions. Perhaps if public health professionals assessed food options and physical activity levels a better understanding of parents and children health behaviors could be examined.

Examining the availability and accessibility of physical activity opportunities in rural areas would be an important predictor regarding physical activity and weight status among African American children. Therefore, identifying and evaluating urban interventions that could be modified for a rural setting could possibly reduce the rates of obesity in rural areas. When adapting the urban interventions for this target population it would be vital to consider the characteristics of the population (e.g., geographic location, language, socioeconomic status), community readiness, risk factors perceived by the target population, and the individuals who would deliver the program (Castro, Barrera, & Martinez, 2004). Finally, a comparison between multiple populations, geographic locations, and health risk behaviors (i.e., access to safe physical activity areas, healthy food options, and healthcare providers) should be conducted using a

longitudinal design. It is vital to examine childhood obesity from multiple perspectives because it will allow community members, public health practitioners, and researchers to identify and assess the prevention strategies that are effective among different groups and environments. Thus, there are countless ideas for future research that could be produced from the present findings of this study.

Conclusions

To date, no published studies were found to have investigated parental perceptions of obesity among African American parents in a rural area. An understanding of these perceptions may contribute to the development of tailored and effective family-based interventions for preventing and treating obesity among African American children. These interventions should be multiple ecological levels not only addressing behavioral habits, but additional factors that affect family stability (e.g., employment). In addition, implementing evidence-based interventions in rural communities to prevent and manage childhood obesity among African American children could reduce obesity rates. While conclusions based on these findings need to be strengthened due to the convenience sample and low response rate, the findings suggest a promising approach that warrants future attention and research before designing and implementing a program within a rural community.

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APPENDICES

Appendix A

Advance Letter

Dear Parent:
A few days from now you will receive a request to fill out a survey and possibly conduct an interview for an important research project being conducted by a doctoral student at Georgia Southern University in a parent meeting/ orientation. The survey and interview asks about your perceptions of preventing childhood obesity.

I am writing in advance because I have found many people like to know ahead of time that they will be contacted. This study is important because the results of the survey and interview can aid in effective programs and interventions for African American parents living in rural communities. Your responses will be completely confidential. If you wish to participate or have any questions about the purpose of the project, you can call me directly at (912) 478-2581.

Thank you for your time and consideration. It's only with the generous help of people like you that research can be successful.

Sincerely,
Dayna S. Alexander
Doctoral Student
Georgia Southern University
Da01280@georgiasouthern.edu
(912) 478-2581

Appendix B

Informed Consents

Preventing childhood obesity: A mixed methods study into the perceptions of African-Americans in a rural community

1. My name is Dayna Alexander and I am a graduate student at Georgia Southern University. I am conducting this research study so that policymakers, public health professionals, and health care professionals may create programs and interventions that are sensitive to the needs of African American families living in rural communities.

2. The purpose of this research is to explore how African American parents feel about childhood obesity in a rural community.

3. Participation in this research will include completion of a survey. On the last page of the survey I will request permission to contact you (name and telephone number) if you are randomly selected for an interview. You will be contacted to participate in the interviews if you complete the last page of the survey. The last page of the survey will be separated by the parent coordinator and given to me. The interview will last approximately for one hour. The interview will be recorded and I will create a transcript from the interview which will be used with the survey data.

4. While it is likely that the survey and interview will have no negative consequences, questions asked may be embarrassing or dealing with sensitive issues at times. You are welcome to end the survey or interview at any time or skip questions that you do not wish to answer. The survey or interview can be continued at a later date if you would like.

5. There are no direct benefits to you for your participation, but this study will benefit African American families who live in rural areas by helping to aid in childhood obesity programs and interventions.

6. This is a one-time survey and will take approximately 30- 40 minutes. If selected for an interview it will take approximately one hour to complete. The interview will be held in a convenient and confidential place for you.

7. I will have access to survey and interview data. The data will be kept in a locked cabinet and stored on my password protected computer for a period of seven years. Audio-recordings of interviews will be stored on my password protected computer for a period of seven years. Once I have completed the transcription of the interview I will remove your name and the names of any other individuals you identify. They will be replaced with assigned numbers. Transcripts will be stored on my password protected computer for a period of one year. All information will be deleted permanently from my computer and shredded after a seven year period. Anyone reading any material related to this

research will not have access to your name.

8. Participants have the right to ask questions and have those questions answered. If you have any questions about this study, please contact me at (912) 478-2581. My contact information is located at the end of this informed consent. For questions concerning your rights as a research participant, contact Georgia Southern University Office of Research Services and Sponsored Programs at (912)478-0843 or email IRB@georgiasouthern.edu.

9. While I am very grateful for your assistance, you will not be financially compensated for your involvement.

10. Your participation in this study is voluntary. You can choose to skip any questions if you do not wish to answer them. You can choose not to return the survey. You may choose to end your involvement at any time by telling me.

11. In order to protect your confidentiality of your information, a number will appear on all of the surveys. All survey data will be collected without revealing any personally identifiable information. All interviews will be recorded and transcribed using pseudonyms, so that no one will be able to personally identify you as a participant.

12. There is no penalty for deciding not to participate in this study. Your involvement or decision to end your involvement will not affect any public benefits you receive or your current employment.

13. You must be 18 years of age or older to consent to participate in this research study. If you consent to participate in this research study and to the terms above, please sign your name and indicate the date below.

You will be given a copy of this consent form to keep for your records. This project has been reviewed and approved by the GSU Institutional Review Board under tracking number H13478.

Title of Project: P*reventing childhood obesity: A mixed methods study into the perceptions of African- Americans in a rural community*

Principal Investigator: Dayna S. Alexander, Georgia Southern University, PO Box 8015, Statesboro, GA 30460, (912) 478-2581, da01280@georgiasouthern.edu

Other Investigator(s):
Dr. Moya Alfonso, Georgia Southern University, PO Box 8015, Statesboro, GA 30460, (912) 478-0966, malfonso@georgiasouthern.edu
Dr. Andrew Hansen, Georgia Southern University, PO Box 8015, Statesboro, GA 30460, (912) 314-3247, ahansen@georgiasouthern.edu
Dr. Yelena Tarasenko, Georgia Southern University, PO Box 8015, Statesboro, GA 30460, (912) 314-3247, ytarasenko@georgiasouthern.edu
Alesha Wright, Georgia Southern University, PO Box 8015, Statesboro, GA 30460, (912) 314-

3247, aw06670@georgiasouthern.edu

_____ _____

Participant Signature Date

I, the undersigned, verify that the above informed consent procedure has been followed.

_____ _____

Investigator Signature Date

Appendix C

Survey Pretesting Protocol

Introduction

Hello my name is Dayna. I am a doctoral student at the Jiann-Ping Hsu College of Public Health. For my dissertation research, I am pretesting a survey to assess the perceptions of childhood obesity. Because you are an African American parent I am inviting you to participate in this research study by completing the attached survey.

The following survey will require approximately 30 minutes to complete. There is no compensation for responding nor is there any known risk. In order to ensure that all information will remain confidential, please do not write your name on the survey. If you choose to participate in this study, please answer all questions as honestly as possible. In addition, feel free to tell me or write any comments about the survey. Participation is strictly voluntary and you may refuse to participate at any time.

Thank you for taking the time to assist me with my educational endeavors. The data collected will provide useful information regarding African Americans and childhood obesity. Completion of this survey will indicate your willingness to participate in this study. If you require additional information or have questions regarding the study, please contact me by email da01280@georgiasouthern.edu.

Sincerely,

Dayna S. Alexander
Doctoral Student
Georgia Southern University

Knowledge of Childhood Obesity Survey

Georgia Southern University

Jiann-Ping Hsu College of Public Health

The purpose of this survey is to gather information regarding parent knowledge of childhood obesity. The aim of this research is to assess what parents do not know about childhood obesity, but **not** to **identify individual's** responses, but **group** responses to aid in effective interventions and programs. YOU SHOULD **NOT** WRITE YOUR NAME anywhere on the survey. As seen on this first page, at the top left-hand section, a **CODE NUMBER** is provided for each individual; this is to conceal your identity. Your participation in this study is very important as it would help the researcher to better understand parental knowledge of childhood obesity. There are no **right** or **wrong** answers to the questions asked or the statements made; instead, what is desired of you is your **truthful** and **honest** responses.

The time needed to complete the questionnaire is approximately 30 minutes. Please note that the completion of this questionnaire is entirely voluntary. All information gathered as a result of your participating in this study will be treated confidentiality. Your willingness to complete the survey implies you have given consent to participate. Thank you for your cooperation.

Perceptions and Knowledge of childhood obesity

This series of questions relate to behaviors.

Please choose your level of agreement. Please *Circle ONLY One:*

	Not at all aware	**Slightly aware**	**Somewhat aware**	**Moderately aware**	**Extremely aware**
1. Race is a factor in childhood obesity.	1	2	3	4	5
2. Household income can cause childhood obesity.	1	2	3	4	5
3. Food advertising causes childhood obesity.	1	2	3	4	5
4. The closeness of a community can prevent childhood obesity.	1	2	3	4	5
5. Childhood obesity is a problem for my community.	1	2	3	4	5
6. Obesity causes health problems.	1	2	3	4	5

	Yes	**No**
7. Childhood obesity is a problem among African American children.	1	2
8. Parent's eating habits influence a child's risk for obesity.	1	2

	True	**False**
9. Bad eating habits are factors of childhood obesity.	1	2
10. Lack of physical activity is factors of childhood obesity.	1	2
11. Parental obesity causes childhood obesity.	1	2
12. There is a difference between obesity and overweight.	1	2
13. Obesity may cause cancer.	1	2

	Not at all aware	Slightly aware	Somewhat aware	Moderately aware	Extremely aware
14. I am aware of what it means to be healthy.	1	2	3	4	5
15. I am aware of the things that can help my child be healthy.	1	2	3	4	5
16. It is important for me to exercise so that my child exercises.	1	2	3	4	5
17. I am aware of how much time my child watches television and plays video games.	1	2	3	4	5
18. I am aware of the unhealthy foods my child eats at school.	1	2	3	4	5

Please turn page.

Perceptions of your child's weight

This series of questions relate to your child's weight.

Please *Circle ONLY One:*

19. My child looks like:

	Not at all concerned	Slightly concerned	Somewhat concerned	Moderately concerned	Extremely concerned
20. I am concerned about my child's weight.	1	2	3	4	5

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
21. I believe it's better for my child to be overweight than underweight.	1	2	3	4	5
22. My child's weight is my responsibility.	1	2	3	4	5
23. I believe that my child is obese.	1	2	3	4	5
24. I believe my child can outgrow obesity.	1	2	3	4	5
25. I believe I can help my child overcome obesity.	1	2	3	4	5
26. I believe I can influence my child's weight.	1	2	3	4	5
27. I am worried that my child is obese.	1	2	3	4	5
28. My child's weight status is related to his/her health problems.	1	2	3	4	5
29. My income and education are related to my child's weight.	1	2	3	4	5

	Yes	No
30. My child's doctor discusses my child's weight with me.	1	2

Please turn the page.

	True	False
31. Children who are heavier are healthier than thinner children.	1	2
32. It is important for my child to be big because this means he or she is healthy.	1	2
33. Thin children are less attractive than larger children.	1	2

Barriers and Benefits in the Built Environment (Community)

This series of questions relate to the barriers and facilitators found in the community.

Please *Circle ONLY One:*

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
34. I believe my child feels safe in my community.	1	2	3	4	5
35. I believe that litter or garbage on the streets prevent my child from exercising.	1	2	3	4	5

	Not at all aware	Slightly aware	Somewhat aware	Moderately aware	Extremely aware
36. My neighbor having a child may prevent childhood obesity in my community.	1	2	3	4	5
37. There are community programs that will help with my child's weight problem.	1	2	3	4	5

Please turn the page.

	True	False
38. The lack of safe places for children to play in a community is a factor of childhood obesity.	1	2
39. Sidewalks or walking paths are benefits of the built environment.	1	2
40. Parks, playground areas, recreational centers, and community centers play a role in childhood obesity.	1	2
41. Poorly kept housing and vandalism may cause childhood obesity.	1	2
42. Safe communities encourage physical activity among children.	1	2

	Not at all aware	Slightly aware	Somewhat aware	Moderately aware	Extremely aware
43. Some of the activities within my community can motivate my child to participate in physical activity.	1	2	3	4	5
44. Traffic can prevent my child from playing in our community.	1	2	3	4	5
45. My community has different activities for my child to participate in.	1	2	3	4	5

	True	False
46. Lack of community programs increase childhood obesity.	1	2
47. There are things in my community that help me prevent obesity.	1	2
48. My community has healthy eating options for my child.	1	2

Please turn the page.

Perceptions of childhood obesity strategies

This series of questions relate to your perceptions of childhood obesity strategies.

Please *Circle ONLY One:*

	Strongly disagree	**Disagree**	**Neither agree or disagree**	**Agree**	**Strongly agree**
49. My child's school plays a role in my child developing healthy behaviors.	1	2	3	4	5
50. My child's school can prevent childhood obesity more than I can.	1	2	3	4	5
51. I encourage my child to drink water and eat healthy snacks.	1	2	3	4	5
52. I provide education about healthy behaviors to my child.	1	2	3	4	5
53. I eat healthy so that my child will eat healthy.	1	2	3	4	5
54. My community can prevent childhood obesity more than I can.	1	2	3	4	5
55. I exercise so that my child will exercise.	1	2	3	4	5
56. I can prevent childhood obesity in my child more than his/her school can.	1	2	3	4	5
57. I have the financial resources for my child not to become obese.	1	2	3	4	5

	True	**False**
58. My child's doctor has told me what I should do to prevent my child from becoming obese.	1	2
59. When I take my child to a restaurant I read the menu to see how many calories my child is eating.	1	2
60. I provide low-fat meals to my child to prevent obesity.	1	2

Please turn the page.

Demographics

This series of questions relate to demographic characteristics.

1. What is the name of the Georgia County you reside in? _____
2. How old are you today? _____
3. Are you a male or female? Male Female
4. What is your height in inches and feet? _____
5. What is your weight in pounds? _____
6. How old is your child today? _____
7. Is your child a male or female? Male Female
8. What is your child's height in inches and feet? _____
9. What is your child's weight in pounds? _____
10. What is the highest grade or year of school you completed?
    ____Less than high school
    ____Some high school, but did not graduate
    ____High school diploma or GED
    ____Some college or an associate degree (2-year)
    ____College degree (Bachelor's)
    ____Some graduate degree study or completed graduate degree
11. In a usual week, how many hours per week do you work for pay? _____
12. **Circle** the option that best describes your household:
    _____One-parent household
    _____ Two-parent household
13. How many children less than 18 years of age live in your household? _____
14. Which of the following categories best describes your annual household income from all sources?
    ____Less than 5,000
    ____5,000- 9,999
    ____10,000-14,999
    ____15,000- 19,999
    ____20,000-24,999
    ____25,000-34,999
    ____35,000-49,999

____50,000-74,999
____75,000-more
____Don't know
____Refuse

15. What race/ethnicity do you self-identify with?
____American Indian or Alaska Native
____Asian
____Black or African American
____Hispanic
____Native Hawaiian or Other Pacific Islander
____White or Anglo-American

Thank you.

Appendix D

Survey Piloting and Protocol Questions

Perceptions and knowledge of childhood obesity survey

Georgia Southern University

Jiann-Ping Hsu College of Public Health

The purpose of piloting this survey is to evaluate the survey and estimate how long it will take to complete the survey. Your participation is voluntary. Your participation in this survey is very important as it would help the researcher to better understand what questions she needs to change. There are no **right** or **wrong** comments. The researcher asks that you provide honest and truthful responses.

All comments and suggestions will be confidential. Your willingness to comment on the survey implies you have given consent to participate.

Thank you for your cooperation.

Perceptions and knowledge of childhood obesity

This series of questions relate to your perceptions and knowledge of obesity.

Please choose your level of agreement. Please Circle only one answer for the question:

	Not at all aware	**Slightly aware**	**Somewhat aware**	**Moderately aware**	**Extremely aware**
1. Lack of money can cause childhood obesity.	1	2	3	4	5
2. Food advertising causes childhood obesity.	1	2	3	4	5
3. The close ties of a community can prevent childhood obesity.	1	2	3	4	5
4. Childhood obesity is a problem for my community.	1	2	3	4	5
5. Obesity causes health problems.	1	2	3	4	5
6. Race is a factor in childhood obesity.	1	2	3	4	5

	Yes	**No**
7. Is childhood obesity a problem among African American children?	1	2
8. Do parent's eating habits influence a child's risk for obesity?	1	2

	True	False
9. Bad eating habits are factors of childhood obesity.	T	F
10. Lack of physical activity is a factor of childhood obesity.	T	F
11. Parental obesity causes childhood obesity.	T	F
12. There is a difference between obesity and overweight.	T	F

	Not at all aware	Slightly aware	Somewhat aware	Moderately aware	Extremely aware
13. I am aware of what it means to be healthy.	1	2	3	4	5
14. I am aware of the things that can help my child be healthy.	1	2	3	4	5
15. It is important for me to exercise so that my child exercises.	1	2	3	4	5
16. I am aware of how much time my child watches television and plays video games.	1	2	3	4	5
17. I am aware of the unhealthy foods my child eats at school.	1	2	3	4	5

Please indicate what health problems you believe relate to obesity. Please answer true or false and Circle only one answer for the question:

	True	**False**
18. Sleep Apnea	T	F
19. Asthma	T	F
20. Diabetes	T	F
21. Heart Disease	T	F
22. High Blood Pressure	T	F
23. Stroke	T	F
24. Cancer	T	F
25. Bone and Joint Problems	T	F
26. Gallstones	T	F
27. Infertility	T	F
28. Menstrual Issues	T	F
29. Osteoarthritis	T	F
30. Gout	T	F
31. Cholesterol	T	F
32. Depression/Low self-esteem	T	F

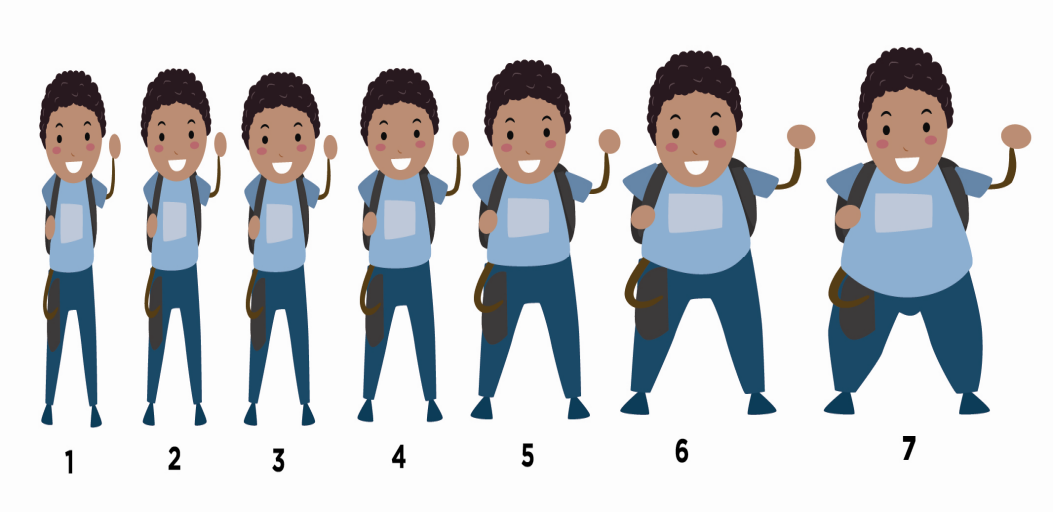
Please turn page.

Perceptions of your child's weight

This series of questions relate to your child's weight.

Please Circle only one answer for the question:

33. My child looks like:



	Not at all concerned	Slightly concerned	Somewhat concerned	Moderately concerned	Extremely concerned
34. I am concerned about my child's weight.	1	2	3	4	5

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
35. I believe my child is the appropriate weight.	1	2	3	4	5
36. I believe it's better for my child to be overweight than underweight.	1	2	3	4	5
37. My child's weight is my responsibility.	1	2	3	4	5
38. I believe my child is obese.	1	2	3	4	5
39. I believe with my help my child can overcome obesity.	1	2	3	4	5
40. I believe I can influence my child's weight.	1	2	3	4	5
41. I believe my child is underweight.	1	2	3	4	5
42. My child's weight status is related to his/her health problems.	1	2	3	4	5
43. My income and education are related to my child's weight.	1	2	3	4	5
44. I believe my child is overweight.	1	2	3	4	5
	Yes	**No**			
45. My child's doctor discusses my	1	2			

child's weight with me.		
46. My child's doctor has explained to me what a growth chart is.	1	2

	True	**False**
47. Children who are heavier are healthier than thinner children.	T	F
48. It is important for my child to be big because this means he or she is healthy.	T	F

Please turn the page.

Perceptions of Barriers and Benefits in the Community

This series of questions relate to the barriers and facilitators found in the community.

Please Circle only one answer for the question:

	Strongly disagree	**Disagree**	**Neither agree or disagree**	**Agree**	**Strongly agree**
49. I believe my child feels safe in my community.	1	2	3	4	5
50. I believe that litter or garbage on the streets can prevent my child from exercising.	1	2	3	4	5
51. There are stray dogs in my community.	1	2	3	4	5
52. There are not enough areas in my community for my child to participate in physical activity.	1	2	3	4	5

	Not at all aware	**Slightly aware**	**Somewhat aware**	**Moderately aware**	**Extremely aware**
53. My child having a playmate in the neighborhood can prevent obesity.	1	2	3	4	5
54. There are health programs in my community that focus on obesity.	1	2	3	4	5

	True	False
55. The lack of safe places for children to play in a community is a factor of childhood obesity.	T	F
56. Sidewalks or walking paths are benefits of the built environment.	T	F
57. Parks, playground areas, recreational centers, and community centers play a role in preventing childhood obesity.	T	F
58. Poorly kept housing and vandalism may cause childhood obesity.	T	F
59. Safe communities encourage physical activity among children.	T	F

	Not at all aware	Slightly aware	Somewhat aware	Moderately aware	Extremely aware
60. Some of the activities within my community can motivate my child to participate in physical activity.	1	2	3	4	5
61. Traffic can prevent my child from playing in our community.	1	2	3	4	5
62. My child can participate in different activities in my community.	1	2	3	4	5

	True	False
63. Lack of community programs increase	T	T

childhood obesity.		
64. There are things in my community that help me prevent obesity.	T	T
65. My community has healthy eating options for my child.	T	T

Please turn page.

Perceptions and prioritization/importance of childhood obesity strategies

This series of questions relate to your perceptions and prioritization/importance of childhood obesity strategies.

Please Circle only one answer for the question:

	Strongly disagree	**Disagree**	**Neither agree or disagree**	**Agree**	**Strongly agree**
66. My child's school plays a role in my child developing healthy behaviors.	1	2	3	4	5
67. My child's school can prevent childhood obesity more than I can.	1	2	3	4	5
68. I encourage my child to drink water instead of sodas.	1	2	3	4	5
69. I provide education about healthy behaviors to my child.	1	2	3	4	5
70. I eat healthy so that my child will eat healthy.	1	2	3	4	5
71. My community can prevent childhood obesity more than I can.	1	2	3	4	5
72. I exercise so that my child will exercise.	1	2	3	4	5
73. I can prevent childhood obesity in my child more than his/her school can.	1	2	3	4	5
74. I have the financial resources for my child not to become obese.	1	2	3	4	5

	True	False
75. My child's doctor has told me what I should do to prevent my child from becoming obese.	T	F
76. When I take my child to a restaurant I read the menu to see how many calories my child is eating.	T	F
77. I provide low-fat meals to my child to prevent obesity.	T	F

Are you currently doing any of the following to prevent childhood obesity?

	Yes	No
78. Limit TV/DVDs	1	2
79. Have my child participate in an after-school program	1	2
80. No internet without permission	1	2
81. Limit portion sizes at meals	1	2
82. Talk to a health professional about my child's weight status	1	2
83. Provide healthy snacks	1	2
84. Participate in exercise with my child	1	2
85. Read nutritional labels	1	2
86. Limit fast food	1	2
87. Talk to community members and leaders about having more programs in my community	1	2

Circle your level of importance.

	Not at all important	Slightly important	Somewhat important	Moderately important	Extremely important
88. Limit TV/DVDs	1	2	3	4	5
89. Have my child participate in an after-school program	1	2	3	4	5
90. No internet without permission	1	2	3	4	5
91. Limit portion sizes at meals	1	2	3	4	5
92. Talk to a health professional about my child's weight status	1	2	3	4	5
93. Provide healthy snacks	1	2	3	4	5
94. Participate in exercise with my child	1	2	3	4	5
95. Read nutritional labels	1	2	3	4	5
96. Limit fast food	1	2	3	4	5
97. Talk to community members and leaders about having more programs in my community	1	2	3	4	5

Demographics

This series of questions relate to demographic characteristics.

16. What is the name of the Georgia County you reside in? _____

17. How old are you today? _____

18. Are you a male or female? Male Female

19. How old is your child today? _____

20. Is your child a male or female? Male Female

21. What is your child's height in feet and inches? _____ feet _____ inches

22. What is your child's weight in pounds? _____

23. What is the highest grade or year of school you completed?

____Less than high school

____Some high school, but did not graduate

____High school diploma or GED

____Some college or an associate degree (2-year)

____College degree (Bachelor's)

____Some graduate degree study or completed graduate degree

24. In a usual week, how many hours per week do you work for pay? _____

25. **Check** the option that best describes your household:

_____One-parent household

_____ Two-parent household

26. How many children less than 18 years of age live in your household? _____

27. Which of the following categories best describes your annual household income from all sources?

____Less than 10,000

____10,001- 19,000

____19,001- 29,000

____29,001- 39,000

____39,001- 49,000

____49,001- 59,000

____59,001- 69,000

____69,001- 74,000

____74,001- more

____Don't know

____Refuse

28. What race/ethnicity do you self-identify with? Please check your response

____Black or African American

____Other: _____ (please specify)

Thank you.

Appendix E

Final Survey

Parental perceptions of childhood obesity survey

Georgia Southern University

Jiann-Ping Hsu College of Public Health

The purpose of this research is to assess parent's perceptions (feelings) about childhood obesity in 6-11 year old children, but **not** to **identify any particular individual's** responses; instead we will study **group** responses to aid in creating better prevention programs. When completing this survey select **one child per household who attends [school name]**. If you have two or more children who attend [school name] only refer to the child who has a higher weight. As seen on this first page, at the top left-hand corner, a **CODE NUMBER** is provided for each individual; this is to conceal your identity. There are no **right** or **wrong** answers to these items; we seek your **honest** answers.

The time needed to complete the questionnaire is approximately 30 minutes. Please note that the completion of all parts of this survey is voluntary, and all answers will be kept confidential (secret).

Thank you for completing this survey.

Perceptions of childhood obesity

This set relates to risk factors (causes) and health complications of obesity. Please choose whether you strongly disagree, disagree, neither, agree, or strongly agree by circling the following item.

Item	Strongly disagree	Disagree	Neither	Agree	Strongly agree
1. Lack of money increases the risk of childhood obesity.	1	2	3	4	5
2. Lack of physical activity increases the risk of childhood obesity.	1	2	3	4	5
3. High calorie food advertising increases the risk of childhood obesity.	1	2	3	4	5
4. Poorly kept housing increases the risk of childhood obesity.	1	2	3	4	5
5. Watching television and playing video games increases the risk of childhood obesity.	1	2	3	4	5
6. Eating foods that have too much fat and sugar increases the risk of childhood obesity.	1	2	3	4	5
7. Parent's eating habits influences a child's risk for obesity.	1	2	3	4	5
8. If a parent is obese their child is likely to become obese.	1	2	3	4	5
9. It is important for me to exercise so that my child exercises.	1	2	3	4	5
10. I can help my child have a healthy lifestyle.	1	2	3	4	5
11. The close ties of a community are a factor in the risk of childhood obesity.	1	2	3	4	5
12. Childhood obesity is an important health problem among	1	2	3	4	5

African American children.					

Please turn the page.

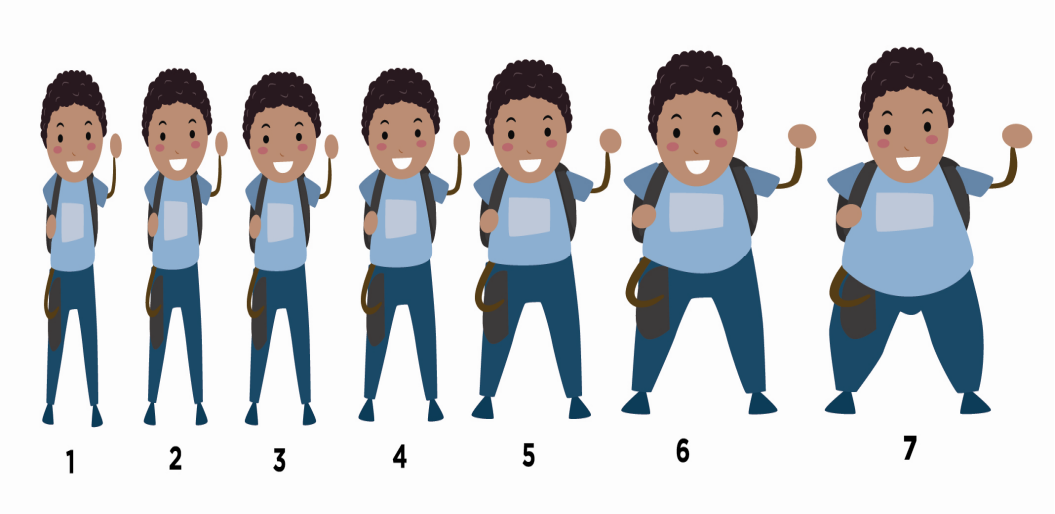
Item	Strongly disagree	Disagree	Neither	Agree	Strongly agree
13. If a child is obese, he/she is more likely to develop **ASTHMA**.	1	2	3	4	5
14. If a child is obese, he/she is more likely to develop **DIABETES**.	1	2	3	4	5
15. If a child is obese, he/she is more likely to have a **STROKE**.	1	2	3	4	5
16. If a child is obese, he/she is more likely to develop **CANCER**.	1	2	3	4	5
17. If a child is obese, he/she is more likely to develop **BONE and JOINT problems**.	1	2	3	4	5
18. If a child is obese, he/she is more likely to be **INFERTILE**.	1	2	3	4	5
19. If a child is obese, she is more likely to have **IRREGULAR MENSTRUAL CYCLES**.	1	2	3	4	5

Please turn the page.

Perceptions of your child's weight

This set relates to your child's weight. Choose one picture from below that represents **one** child (son or daughter) from your household – select ONLY ONE child.

20. My child about whom I am answering questions looks MOST like:



Please choose whether you strongly disagree, disagree, neither, agree, or strongly agree by circling the following item.

Item	Strongly disagree	Disagree	Neither	Agree	Strongly agree
21. I am concerned about my child's weight.	1	2	3	4	5
22. My child is the appropriate weight for his/her age.	1	2	3	4	5
23. My child is obese right now.	1	2	3	4	5
24. With my help I can prevent my child from becoming obese.	1	2	3	4	5
25. I can influence my child's weight.	1	2	3	4	5
26. My child is underweight.	1	2	3	4	5
27. My child is overweight, but not obese.	1	2	3	4	5
28. My child's weight status is related to his/her health problems.	1	2	3	4	5
29. My child's doctor discusses my child's weight with me.	1	2	3	4	5
30. My child's doctor has explained and shown me a growth chart.	1	2	3	4	5
31. There is a difference between obesity and overweight.	1	2	3	4	5

You're almost done!

Perceptions of Barriers and Benefits in the Community

This set relates to the barriers and benefits found in your community. Please choose whether you strongly disagree, disagree, neither, agree, or strongly agree by circling the following item.

Item	Strongly disagree	Disagree	Neither	Agree	Strongly agree
32. My child feels safe in my community.	1	2	3	4	5
33. Litter or garbage on the streets can prevent my child from exercising.	1	2	3	4	5
34. Stray dogs in my community can prevent my child from exercising.	1	2	3	4	5
35. There are not enough areas in my community for my child to participate in physical activity.	1	2	3	4	5
36. Traffic can prevent my child from playing in our community.	1	2	3	4	5
37. Lack of community programs increase childhood obesity.	1	2	3	4	5
38. My child having a playmate in the neighborhood can prevent obesity.	1	2	3	4	5
39. There are health programs in my community that focus on obesity.	1	2	3	4	5
40. Some of the activities within my community can motivate my child to participate in physical activity.	1	2	3	4	5
41. Parks, playground areas, recreational centers, and community centers play a role in preventing childhood obesity.	1	2	3	4	5
42. Safe communities encourage	1	2	3	4	5

physical activity among children.					

Perceptions and importance of childhood obesity strategies

This set relates to your perceptions and importance of childhood obesity strategies. Please choose whether you strongly disagree, disagree, neither, agree, or strongly agree by circling the following item.

Item	Strongly disagree	Disagree	Neither	Agree	Strongly agree
43. Schools play a role in my child developing healthy behaviors.	1	2	3	4	5
44. My child's school can prevent childhood obesity more than I can.	1	2	3	4	5
45. My child's doctor has told me what I should do to prevent my child from becoming obese.	1	2	3	4	5
46. My community can prevent childhood obesity more than I can.	1	2	3	4	5
47. I encourage my child to drink water instead of sugary drinks.	1	2	3	4	5
48. I provide education about healthy behaviors to my child.	1	2	3	4	5
49. I provide low-fat meals to my child to prevent obesity.	1	2	3	4	5
50. I have the income to help prevent my child from becoming obese.	1	2	3	4	5

Please turn the page.

Please circle your level of importance for preventing childhood obesity.

Item	Not at all important	Slightly important	Somewhat important	Moderately important	Extremely important
51. Limit time for TV, DVDs, video games (screen time)	1	2	3	4	5
52. Have my child participate in an after-school program	1	2	3	4	5
53. Limit portion sizes at meals	1	2	3	4	5
54. Talk to a health professional about my child's weight status	1	2	3	4	5
55. Provide healthy snacks	1	2	3	4	5
56. Participate in exercise with my child	1	2	3	4	5
57. Read nutritional labels	1	2	3	4	5
58. Limit high calorie foods	1	2	3	4	5
59. Talk to community members and leaders about having more programs in my community	1	2	3	4	5

Please turn the page.

Demographics

This set relates to your demographic characteristics.

29. What is the name of the Georgia County you reside in? _____
30. How old are you today? _____ years
31. Are you a male or female? Male Female
32. How old is your child today? _____ years
33. Is your child a male or female? (Only choose 1 child) Male Female
34. **Check** the option that best describes your child:

    _____Only child _____Youngest _____Middle _____Oldest
35. What is your child's height in feet and inches? _____ feet _____ inches
36. What is your child's weight in pounds? _____ pounds
37. What is the highest grade or year of school you completed? **Check** the option that best describes you.

    ____Less than high school ____Some high school, but did not graduate

    ____High school diploma or GED ____Some college or an associate degree (2-year)

    ____College degree (Bachelor's) ____Some graduate degree study or completed
38. In a usual week, how many hours per week do you work for pay? _____
39. **Check** the option that best describes your household:

    _____One-parent household _____ Two-parent household
40. How many children less than 18 years of age live in your household? _____
41. Which of the following categories best describes your yearly household income from all sources? Please check your response.

    ____Less than 10,000 ____10,001- 19,000 ____19,001- 29,000 ____29,001- 39,000

    ____39,001- 49,000 ____49,001- 59,000 ____59,001- 69,000 ____69,001- 74,000

    ____74,001- more ____Don't know ____Prefer not to answer
42. What race/ethnicity do you self-identify with? Please check your response.

    ____Black or African American

    ____Other: _____ (please specify)

Thank you for completing this survey!

To be completed only if you would like to participate in an interview to explain your perceptions (feelings) about childhood obesity.

Name: _____

Telephone Number: _____

Appendix F

Interview Pretesting Protocol Questions

Purpose: The purpose of this study is to assess the relationship between parental perceptions of childhood obesity among African American parents living in rural communities.

Interview Participant Number: _____

Date of interview: _____ **Time of interview**: _____ **Place of interview**: _____

Introduction:

1. I am researching parent's perceptions and childhood obesity for a doctoral dissertation at Georgia Southern University. This study is being conducted to explore parent's perceptions of preventing childhood obesity among African Americans living in rural communities. The results of this research study will be used to aid in developing programs and interventions that are targeted towards parents and childhood obesity.

2. I want to assure you that this interview is strictly confidential.

3. You have signed an informed consent outlining your rights as a research participant. I want to remind you that you may decide at any time not to participate or to withdraw from participating in this study. My contact information is provided on the informed consent in case you have any questions or concerns. In addition, I have provided you a copy for your records.

4. I am going to record this interview so that the interview can be transcribed later. This will give me an accurate interpretation of responses to the questions.

5. It is important that I maintain the integrity of your words; therefore, I may ask you to review the transcription if I have any difficulties with the interpretation.

6. Please feel free to discuss your views openly during this interview. From time to time, I may ask for clarification to further understand your response. Please remember all responses are confidential.

7. Thank you for sharing your thoughts with me. Let's begin.

Interview Questions:

1. What is it like to live in a rural community?

2. How long have you lived in this community? How would you describe your community to someone who just moved there?

   The next set of questions asks about your perceptions and what you know about childhood obesity.

Awareness/ Perceptions of childhood obesity

3. What have you heard about obesity and rural communities?

4. What things do you believe contribute most to childhood obesity in rural areas?

5. What can you do to prevent your child from becoming obese? What do you believe will happen if you don't do those things?

6. How does childhood obesity affect health?

7. How do you motivate yourself and eat healthy?

8. How do you motivate yourself to participate in physical activity? How often do you participate in physical activity?

9. How do you motivate your child to participate in physical healthy?

10. How do you motivate your child to eat healthy?

    The next set of questions (maybe uncomfortable for you) because they discussed your child's weight.

Perceptions of BMI

11. How would you describe your child's weight?

12. How do you determine if your child is obese?

13. When the last time was your child's weight and height was taken from a doctor or nurse?

14. What can you do as a parent to help your child have or maintain a healthy weight?

The next set of questions asks about your perceptions of barriers and facilitators in your child's built environment (e.g., access to recreational parks and facilities).

Perceived Barriers and Facilitators to the Built Environment

15. How do you feel about your community?

16. What about your community makes it easy to be healthy?

17. What about your community makes it difficult to be healthy?

18. What grocery stores and restaurants are in the community?

19. Where do children go to play?

20. What suggestions do you have for improving the health of children in the community?

21. What suggestions do your neighbors have for improving the health of children in the community?

22. What resources are available in your community to improve children's weight status? Which of these have you tried? Why?

The next set of questions asks about your perceptions and prioritization of childhood obesity strategies.

Perceptions of Childhood Obesity Strategies

23. Do you believe childhood obesity is an important problem within the African American community?

24. Do you think parents play an important role in developing healthy behaviors in their children?

25. Do you think your child's school plays an important role in developing healthy behaviors in your child?

26. How does the school's responsibility compare to your responsibility of preventing childhood obesity?

27. What can you do to prevent your child from becoming obese?

28. What other strategies can be used to prevent childhood obesity?

Demographics

29. What is the name of the Georgia County you reside in? _____

30. How old are you today? _____

31. Are you a male or female? Male Female

32. What is your height in inches and feet? _____

33. What is your weight in pounds? _____

34. How old is your child today? _____

35. Is your child a male or female? Male Female

36. What is your child's height in inches and feet? _____

37. What is your child's weight in pounds? _____

38. What is the highest grade or year of school you completed?
____Less than high school
____Some high school, but did not graduate
____High school diploma or GED
____Some college or an associate degree (2-year)
____College degree (Bachelor's)
____Some graduate degree study or completed graduate degree

39. In a usual week, how many hours per week do you work for pay? _____

40. **Circle** the option that best describes your household:
____One-parent household
____Two-parent household

41. How many children less than 18 years of age live in your household? _____

42. Which of the following categories best describes your annual household income from all sources?
____Less than 5,000

____5,000- 9,999
____10,000-14,999
____15,000- 19,999
____20,000-24,999
____25,000-34,999
____35,000-49,999
____50,000-74,999
____75,000-more
____Don't know
____Refuse

43. What race/ethnicity do you self-identify with?
____American Indian or Alaska Native
____Asian
____Black or African American
____Hispanic
____Native Hawaiian or Other Pacific Islander
____White or Anglo-American

Conclusion

44. Anything else you would like to share.

45. Who should I visit with to learn more about my questions?

46. Can I answer any questions for you?

Thank you for your time.

Appendix G

Interview Piloting Protocol Questions

Purpose: The purpose of this study is to assess the relationship between parental perceptions of childhood obesity among African American parents living in rural communities.

Interview Participant Number: _____

Date of interview: _____ **Time of interview**: _____ **Place of interview**: _____

Introduction:

1. I am researching parent's awareness of preventing childhood obesity among African Americans living in rural communities. The results of this study will be used to create better prevention programs for children.

2. I want to assure you that this interview is strictly confidential.

3. You have signed an informed consent form outlining your rights as a research participant. I want to remind you that you may decide at any time not to participate or to withdraw from this study. My contact information is provided on the informed consent in case you have any questions or concerns. In addition, I have provided you a copy for your records.

4. I am going to record this interview so that I can remember everything you say. This will give me an accurate interpretation of your answers.

5. Please feel free to discuss your views openly during this interview. From time to time, I may ask for clarification to further understand your response. Please remember all responses are confidential.

6. Thank you for sharing your thoughts with me. Let's begin.

1. What is it like to live in a rural community?
2. How long have you lived in this community? How would you describe your community to someone who just moved here?

The next set of questions asks about your awareness and what you know about childhood obesity.

3. What have you heard about obesity in rural communities?
4. What motivates someone to eat healthily?
5. What motivates someone to be physically active?
6. If someone is obese what health problems do you believe they have?

The next set of questions (maybe uncomfortable for you) because they discussed your child's weight. Let me know if you would like to skip a question.

7. How would you describe your child's weight?
8. What can you do as a parent to help your child have or maintain a healthy weight?

The next set of questions asks about your awareness and knowledge of things that make it easy or difficult for you to be healthy in your community.

9. How do you feel about your community?
10. What about your community makes it easy/difficult to have or maintain a healthy weight?
11. What suggestions do you have for improving the health of children in your community?

The next set of questions asks about your awareness and importance of childhood obesity strategies.

12. How has childhood obesity affected the African American community as a whole?

13. What other strategies can be used to prevent childhood obesity?

14. Would you like to share anything else?

Demographics

15. What is the name of the Georgia County you reside in? _____

16. How old are you today? _____

17. Are you a male or female?

18. How old is your child today? _____

19. Is your child a male or female?

20. What is the highest grade or year of school you completed?

____ Less than high school ____ Some high school, but did not graduate

____ High school diploma or GED _____ Some college or an associate degree

____ College degree (Bachelor's) _____ Some graduate degree study or completed

21. In a usual week, how many hours per week do you work for pay? _____

22. Check the option that best describes your household:

_____ One-parent household _____ Two-parent household

23. How many children less than 18 years of age live in your household? _____

24. Which of the following categories best describes your annual household income from all sources?

__Less than 10,000 ___10,001- 19,000 __19,001-29,000 __29,001-39,000

__ 39,001-49,000 ___49,001-59,000 __59,001-69,000 __69,001-74,000

__74,001- more ___Don't know __ No response

Appendix H

Final Interview Guide

Purpose: The purpose of this study is to assess the relationship between parental perceptions of childhood obesity among African American parents living in rural communities.

Interview Participant Number: _____

Date of interview: _____ **Time of interview**: _____ **Place of interview**: _____

Introduction:

1. I am studying parent's awareness of preventing childhood obesity among African Americans living in rural communities. The results of this study will be used to create better prevention programs for children.

2. I want to assure you that this interview is strictly confidential.

3. You have signed an informed consent form outlining your rights as a research participant. I want to remind you that you may decide at any time not to participate or to withdraw from this study. My contact information is provided on the informed consent in case you have any questions or concerns. In addition, I have provided you a copy for your records.

4. I am going to record this interview so that I can remember everything you say. This will give me an accurate interpretation of your answers.

5. Please feel free to discuss your views openly during this interview. From time to time, I may ask for clarification to further understand your response. Please remember all responses are confidential.

6. Thank you for sharing your thoughts with me. Let's begin.

1. What is it like to live in a rural community?
2. How long have you lived in this community? How would you describe your community to someone who just moved here?

The next set of questions asks about your awareness and what you know about childhood obesity.

3. What have you heard about obesity in rural communities?
4. What motivates someone to eat healthily?
5. What motivates someone to be physically active?
6. If someone is obese what problems might they develop?

The next set of questions (maybe uncomfortable for you) because they discuss your child's weight. Let me know if you would like to skip a question.

7. How would you describe your child's weight?
8. What can you do as a parent to help your child have or maintain a healthy weight?

The next set of questions asks about your awareness of things that make it easy or difficult for you to be healthy in your community.

9. How do you feel about your community?
10. What about your community makes it easy/difficult to have or maintain a healthy weight?
11. What suggestions do you have for improving the health of children in your community?

The next set of questions asks about your awareness and importance of childhood obesity strategies.

12. How has childhood obesity affected the African American community as a whole?
13. What other strategies can be used to prevent childhood obesity?

14. Some programs have shown that at times parents cannot recognize if their child's weight status. Can you provide me with any recommendations on how doctors, health educators, the government, schools, and etc. can solve this?
15. Would you like to share anything else?

Demographics

16. What is the name of the Georgia County you reside in? _____
17. How old are you today? _____
18. How old is your child today? ____
19. Is your child a male or female? _____
20. What is your child's height in feet and inches? ____ feet ____inches
21. What is your child's weight in pounds? ____pounds
22. What is the highest grade or year of school you completed?

    ___ Less than high school ___ Some high school, but did not graduate

    ___ High school diploma or GED ___ Some college or an associate degree

    ___ College degree ___Some graduate degree study or completed
23. In a usual week, how many hours per week do you work for pay? ____
24. Check the option that best describes your household:

    ___ One-parent household ____ Two-parent household
25. How many children less than 18 years of age live in your household? ____
26. Which of the following categories best describes your annual household income from all sources? ___ Less than 10,000 ___10,001- 19,000 ___19,001- 29,000

    __29,001- 39,000 __39,001- 49,000 __49,001- 59,000 ___59,001- 69,000

___69,001- 74,000 ____74,001- more ___Don't know ___No response

Thank you for your time.

Appendix I

Descriptive statistics of survey items

Descriptive statistics of survey items

Survey Items (Number)	Responses (Frequency and percentages)					Mean	Missing
	Strongly disagree	Disagree	Neither	Agree	Strongly agree		
Lack of money (1)	24 (18.18)	42 (31.82)	28 (21.21)	24 (18.18)	14 (10.61)	2.71	3
Lack of physical activity (2)	2 (1.52)	13 (9.85)	10 (7.58)	50 (37.88)	57 (43.18)	4.11	3
Food advertising (3)	4 (3.05)	25 (19.08)	12 (9.16)	49 (37.40)	41 (31.30)	3.74	4
Poorly kept housing (4)	25 (19.38)	44 (34.11)	34 (26.36)	14 (10.85)	12 (9.30)	2.56	6
Watching TV (5)	10 (7.63)	22 (16.79)	20 (15.27)	48 (36.64)	31 (23.66)	3.51	4
Eating foods (6)	1 (0.76)	7 (5.34)	5 (3.82)	61 (46.56)	57 (43.51)	4.26	4
Parent's eating habits (7)	4 (3.05)	11 (8.40)	10 (7.63)	67 (51.15)	39 (29.77)	3.96	4
Parental obesity (8)	18 (13.85)	34 (26.15)	23 (17.69)	41 (31.54)	14 (10.77)	2.99	5
Parent's exercising habits (9)	2 (1.53)	8 (6.11)	8 (6.11)	64 (48.85)	49 (37.40)	4.14	4
Parent's lifestyle (10)	2 (1.54)	4 (3.08)	1 (0.77)	48 (36.92)	75 (57.69)	4.46	5
Close ties of a community (11)	10 (7.63)	34 (25.95)	41 (31.30)	33 (25.19)	13 (9.92)	3.03	4
A problem (12)	9 (6.82)	17 (12.88)	17 (12.88)	57 (43.18)	32 (24.24)	3.65	3
Asthma (13)	8 (6.02)	28 (21.05)	38 (28.57)	47 (35.34)	12 (9.02)	3.20	2
Diabetes (14)	4 (2.99)	12(8.96)	13 (9.70)	76 (56.72)	29 (21.64)	3.85	1
Stroke (15)	5 (3.76)	22 (16.54)	23 (17.29)	64 (48.12)	19 (14.29)	3.52	2
Cancer (16)	10 (7.52)	45 (33.83)	60 (45.11)	13 (9.77)	5 (3.76)	2.68	2
Bone and joint problems (17)	4 (2.99)	15 (11.19)	32 (23.88)	60 (44.78)	23 (17.16)	3.61	1
Infertile (18)	11 (8.21)	42 (31.34)	56 (41.79)	19 (14.18)	6 (4.48)	2.75	1
Irregular Menstrual cycles (19)	5 (3.73)	32 (23.88)	51 (38.06)	32 (23.88)	14 (10.45)	3.13	1
My child looks (20)	Refer	to	table	4.5		3.60	16
Concern about weight (21)	27 (20.15)	43 (32.09)	9 (6.72)	33 (24.63)	22 (16.42)	2.85	1
Appropriate weight (22)	12 (8.96)	24 (17.91)	12 (8.96)	55 (41.04)	31 (23.13)	3.5	1
Obese (23)	60 (45.45)	39 (29.55)	14 (10.61)	11 (8.33)	8 (6.06)	2	3
Prevent obesity (24)	4 (2.99)	3 (2.24)	10 (7.46)	63 (47.01)	54 (40.30)	4.19	1
Parental influence (25)	2 (1.56)	6 (4.69)	13 (10.16)	66 (51.56)	41 (32.03)	4.07	7
My child is underweight (26)	48 (36.36)	55 (41.67)	19 (14.39)	8 (6.06)	2 (1.52)	1.94	3
My child is overweight (27)	40 (30.53)	36 (27.48)	22 (16.79)	27 (20.61)	6 (4.58)	2.41	4
Health problems (28)	34 (25.37)	44 (32.84)	43 (32.09)	9 (6.72)	4 (2.99)	2.29	1
Doctor discusses weight (29)	14 (10.53)	17 (12.78)	26 (19.55)	53 (39.85)	23 (17.29)	3.40	2
Growth chart (30)	4 (3.01)	11 (8.27)	19 (14.29)	62 (46.62)	37 (27.82)	3.87	2
Difference (31)	6 (4.48)	15 (11.19)	12 (8.96)	69 (51.49)	32 (23.88)	3.79	1
Safe in community (32)	1 (0.78)	3 (2.33)	7 (5.43)	78 (60.47)	40 (31.01)	4.18	6
Litter or garbage (33)	36 (27.91)	50 (38.76)	27 (20.93)	13 (10.08)	3 (2.33)	2.20	6
Stray dogs (34)	16 (12.60)	28 (22.05)	21 (16.54)	37 (29.13)	25 (19.69)	3.21	8
Not enough areas (35)	25 (19.23)	45 (34.62)	10 (7.69)	28 (21.54)	22 (16.92)	2.82	5
Traffic (36)	20 (15.50)	46 (35.66)	17 (13.18)	30 (23.26)	16 (12.40)	2.81	6
Lack of programs (37)	13 (10.24)	35 (27.56)	12 (9.45)	46 (36.22)	21 (16.54)	3.21	8
Playmate (38)	15 (11.72)	31 (24.22)	28 (21.88)	40 (31.25)	14 (10.94)	3.05	7
Present health programs (39)	24 (18.46)	44 (33.85)	40 (30.77)	19 (14.62)	3 (2.31)	2.48	5
Motivate (40)	8 (6.25)	17 (13.28)	18 (14.06)	67 (52.34)	18 (14.06)	3.54	7
Recreational facilities (41)	3 (2.31)	8 (6.15)	12 (9.23)	77 (59.23)	30 (23.08)	3.94	5
Communities encourage (42)	4 (3.08)	3 (2.31)	16 (12.31)	72 (55.38)	35 (26.92)	4.00	5
Schools (43)	6 (4.48)	5 (3.73)	9 (6.72)	87 (64.93)	27 (20.15)	3.92	1
My child's school (44)	25 (19.23)	61 (46.92)	33 (25.38)	7 (5.38)	4 (3.08)	2.26	5
My child's doctor (45)	5 (3.82)	20 (15.27)	24 (18.32)	63 (48.09)	19 (14.50)	3.54	4
My community (46)	32 (24.24)	68 (51.52)	28 (21.21)	2 (1.52)	2 (1.52)	2.04	3
Drink water (47)	2 (1.52)	2 (1.52)	4 (3.03)	68 (51.52)	56 (42.42)	4.31	3
Provide education (48)	1 (0.76)	1 (0.76)	15 (11.36)	82 (62.12)	33 (25.00)	4.09	3
Provide low-fat meals (49)	2 (1.53)	20 (15.27)	21 (16.03)	70 (53.44)	18 (13.74)	3.62	4
Income (50)	8 (5.97)	14 (10.45)	28 (20.90)	64 (47.76)	20 (14.93)	3.55	1
	Not at all important	**Slightly important**	**Somewhat important**	**Moderately important**	**Extremely important**	**Mean**	**Missing**
Limit screen time (51)	9 (6.77)	3 (2.26)	28 (21.05)	36 (27.07)	57 (42.86)	3.96	2
After-school program (52)	8 (6.11)	11 (8.40)	31 (23.66)	38 (29.01)	43 (32.82)	3.74	4

Limit portion sizes (53)	5 (3.79)	3 (2.27)	18 (13.64)	42 (31.82)	64 (48.48)	4.18	3
Health professional (54)	10 (7.52)	10 (7.52)	23 (17.29)	41 (30.83)	49 (36.84)	3.81	2
Provide healthy snacks (55)	1 (0.75)	1 (0.75)	10 (7.52)	38 (28.57)	83 (62.41)	4.51	2
Exercise with my child (56)	2 (1.50)	2 (1.50)	9 (6.77)	39 (29.32)	81(60.90)	4.46	2
Read nutritional labels (57)	3 (2.26)	7 (5.26)	19 (14.29)	44 (33.08)	60 (45.11)	4.13	2
Limit high calorie foods (58)	2 (1.53)	3 (2.29)	11 (8.40)	41 (31.30)	74 (56.49)	4.38	4
Community leaders (59)	12 (9.02)	11 (8.27)	26 (19.55)	38 (28.57)	46 (34.59)	3.71	2
Total							**209**

Appendix J

Expertise of Research Team

Research Member	Field/Discipline	Skills & Expertise
Dr. Moya Alfonso	Community Health	Adolescent health, SPSS, SAS, Health promotion, Community-Based Participatory Research (CBPR), mixed methods research
Dr. Gavin Colquitt	Higher Education	Program evaluation, grant writing, SPSS
Dr. Andrew Hansen	Community Health	Qualitative research, health promotion, nutrition, child health, health education
Dr. Larissa Brunner Huber	Epidemiology	Quantitative research, obesity, contraceptives, SAS, SUDAAN
Dr. Robert McDermott	Health Education	Mixed methods research, adolescent risk behaviors, social marketing
Dziyana Nazaruk	Community Health	Mixed methods research, SPSS, community outreach
Dr. Alison Scott	Community Health	Qualitative research, CBPR, grant writing, social determinants of health
Julian Strayhorn	Graphic Design	Designer, branding, illustration
Dr. Yelena Tarasenko	Policy/Epidemiology	Quantitative research, epidemiology, SAS, Stata, grant writing
Dr. Ashley Walker	Health Education and Promotion	CBPR, health education, mixed methods research
Alesha Wright	Community Health	Mixed methods research, SPSS, community outreach

Appendix K

External Audit

PREVENTING CHILDHOOD OBESITY: A MIXED METHODS STUDY INTO THE PERCEPTIONS OF AFRICAN AMERICANS IN A RURAL COMMUNITY

External Audit

by

Dr. Gavin Colquitt

The purpose of this report is to provide an external review of the dissertation proposal by Dayna Alexander. In general, the methods of the proposal were followed in a manner that was appropriate for the design of the study. The dissertation is of high quality, makes a meaningful contribution to the field, and provides new insight into perceptions of childhood obesity among African Americans in a rural community. The purpose of the study aligns with the mission of the Jiann-Ping Hsu College of Public Health (JPHCOPH) and provides evidence that the doctoral candidate possesses the required competencies of the Social and Behavioral Sciences/Community Health Concentration in the Doctor of Public Health program. The following comments are the result of an analysis of the adherence to the original proposal, methodological rigor and accuracy, and the presentation of results, discussion, and conclusions.

- After receiving approval from her committee, the candidate submitted the application to the University Institutional Review Board (IRB). In June of 2013, the candidate submitted the application to IRB. Through the summer of 2013, the candidate worked to resolve concerns from the IRB and school board. These concerns centered on most aspects of data collection, including the location and length of interviews, survey questions, and the process for piloting interview guide and pretesting the survey. These issues were resolved in a manner that allowed the candidate to progress with a course of action that adhered to the method outlined in her proposal.

- One such issue centered on the methods and location for pilot testing. This was resolved by conducting the pilot test at another location. The methods for pilot testing were appropriate. The major flaw regarding instrumentation was the lack of establishing reliability of individual sub scales for the survey prior to administration. Although related, these were measuring different constructs. Since the survey often used Likert scale questions, ordinal alpha may be more appropriate measure than Cronbach's alpha.

- After data collection began, another issue occurred. The response rate was initially low. The candidate followed an appropriate plan for follow up data collection. This included additional meetings with necessary community stakeholders and school personnel. Follow up efforts were done in a sequential process that was appropriate for community-based participatory

research. A comparison of the sequence of these efforts- clearly detailed in the researcher's notes- indicated data collection procedures in chapter 3 were adequately followed. However, these procedures need to be outlined in the methods.

- Regarding procedures, a possible error was made in determining the necessary sample size. The size of the target population (e.g. age, gender, and race) was unclear. The total number of African American students at the elementary school was 595, but the number of students between the ages of 8-11 was not provided. The researcher indicated a response rate of 135 participates or 58%. This number seems to be based on the number arrived via power analysis, 231. Since parents were delimited to students between the ages of 8 and 11, it seems that a smaller number than 595 would be used. Additionally, the design effect was set at 1.0. This is appropriate for random sampling, but not typical for the nonprobability methods employed in this study.

- Additionally, the details on the random follow-up surveys (line 1343) need to be clarified. These are somewhat addressed in the notes, but the methods of survey distribution and randomization need to be explained. Allowing teachers to randomly select students may be a threat to internal validity which may need to be addressed later in the manuscript.

- Overall, the candidate has gone through exhaustive measures to establish the trustworthiness of data. This is evidenced through: field notes and journaling for reflexivity; the analysis plan (e.g. notes on issues that arose and decisions made), and documentation of qualitative work (e.g. analysis plans, notes on issues that arose and decisions made). However, additional detail on how data coders arrived at agreement on specific themes is needed.

- The identification of participants for the interview portion of the study needs to be clarified. The field notes seem to suggest that parents were targeted because their children were obese. Were participants randomly selected through surveys or based on the BMI of the child?

- The candidate does a nice job providing a narrative overview of the descriptives. However, income data would be better presented in relation to the federal poverty level or qualification for free/reduced price lunch assistance.

- In the overview of the characteristics of the interview participants, there are a few errors.

- In general, the presentation of the results is effective for the concurrent mixed-methods design, and supports the use of this method to address the research questions of the study. Parental perceptions of risk factors are supported with qualitative data. The presentation of the results regarding health complications is not as clear. This needs to be re-ordered and results of the survey need to be presented in more detail (lines 1583-1585). There is also a lack of clarity in the presentation of survey results on parent perceptions of their child's weight status (lines 1600-1602). It is not clear whether or not there are discrepancies among

these responses. In this same section, the results of parent report and the child's weight is unclear (lines 1618-1619).

- The presentation of the results regarding the role of the built environment is clear and easy to follow, specifically between the survey and interview results. The only suggestion would be to preface how the survey measured these items (beginning in line 1648), as they are true/false which is different than the Likert scale items.

- The results are not as clear in the following section on Prevention Strategies. It is not always clear which data source (e.g. survey or interview) is being referenced.

- The Summary seems to oversimplify some of the findings. Perhaps this is in part due to the lack of clarity previously mentioned. For example, there was an apparent discrepancy between health complications and obesity and the likelihood of developing another comorbid, chronic condition. These need to be highlighted, as these identify an area that may need to be addressed through community-based programming. Since this is formative research, the summary needs to highlight such issues. Additional detail is needed to do so.

- In the discussion, the role of social cohesion warrants more attention. Detail on how this was measured in the study should be provided again. This is a complex construct with multiple factors, each of which can differ based on context. The candidate should also refer back to Duke et al. in the discussion of this construct.

- In the discussion of preventive strategies, the candidate makes some overgeneralizations (lines 1777-1787). First, it is not clear which data source is being referenced. Additionally, the candidate needs to provide an explanation on behavior associated with the initiation of preventive changes by parents and respond to how this fits within the theoretical framework of the study.

- Parental perceptions need to be better situated in the literature on interventions, specifically those that include families. Additionally, statements in lines 1800-1801 and 1806-1810 contradict each other. If overweight families are already engaging in more physical activity but their children are still overweight, why should research continue along this line? This is a significant issue, and needs a more thorough discussion.

- The conclusions need to be tightened once the discussion is expanded. The findings of this study are significant in many ways, and highlight the complexity of the problem in this context. There are many potential implications, but a more focused set of conclusions is needed for these to be realized and clearly communicated in the dissertation manuscript. Line 1818 refers to a relationship, but the other variable is not mentioned. Instead of a 'relationship' referenced here, the candidate needs to focus on the results that contradict significant bodies of research mentioned in the discussion. The conclusion ends by appropriately placing the results in the context of the study.

- While discussing the strengths of the study, the candidate mentions triangulation (line 1831). Although numerous steps were taken to ensure the trustworthiness of the data, specific steps for the type of triangulation that might be referenced here (e.g. data, investigator, or methodological) were not detailed in the methods. In the same section, the candidate provides a general description of the strengths of the theoretical framework. There needs to be a clear description of how the theory guided the process. The candidate only refers to previous research rather than the current study.

- Overall, I think that the discussion and possibly the limitations section overlooked the fact that this was study was carried out through a single entity- the school. Research has shown that, in some cases, there is a lack of distrust and low participation in studies using schools to access low SES populations. This needs to be mentioned for two reasons. One, it may have influenced the response rate. Two, many parents in this study had positive views of the school and viewed them as supportive. The formative nature of this research needs to highlight the potential of this community asset.

- In the lessons learned section, the candidate refers to other data sources. These data sources would have provided the necessary information to provide additional triangulation of data as well.

- Once the discussion is expanded and the conclusions tightened, the implications of this study need to be revisited. By following previous suggestions, the manuscript will highlight the significance of the findings in the broader context of the literature.

- The implications for public health need to focus key aspects of the formative findings and how these findings could translate into the development of programming specific to this population and context. These revised implications would be more meaningful and tangible. For example, the current implications reference modifying environmental factors. Such factors are part of the built environment. However, programs that maximize community assets offer greater potential.

- Similarly, the recommendations fail to identify a clear next step based on the formative results of the study. The findings are significant and can point to immediate, low-cost, feasible strategies to address some of the issues in the community. The candidate goes on to provide some good topics for future research, but the fails to highlight the potential for developing and testing new interventions based on the findings. Recommendations for future research should show a clear path to community-based programming.

Summary

The dissertation manuscript is of high quality and presents original research with great potential to impact the field. The doctoral candidate followed the methods of the proposal with a high degree of fidelity, resulting in quality formative research to inform future programming. The comments in the report are meant to enhance an already quality body of work. To maximize the

impact of this study, the candidate is encouraged to address the suggestions outlined in this report.